



FRIDAY, AUGUST 23, 1895.

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## Contributions.

## Temperature Stresses.

CHICAGO, Aug. 14, 1895.

TO THE EDITOR OF THE RAILROAD GAZETTE:

We all know something about the effects of temperature in causing expansion and contraction. I lately had a little illustration of the strains set up and their relief. It happened that I was inspecting some track with the officials of a certain railroad, and we came across a joint which was at least an inch wide—that is, there was that space between the ends of the two rails. The fish-plates were taken off and one rail was struck a few blows with a sledge, with the result that the two rails came together with a report like the crack of a firecracker. It is pretty certain that this unusual space between the ends of the rails had been caused by their contraction during cold weather, as it was a single-track road.

Is it not reasonable to assume that a piece of metal which is in a condition of compression through temperature will be more liable to fracture than if the strains resulting therefrom are absolutely relieved?

INSPECTOR.

## Another Way to Get Your Car Couplers.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Last week I sent you a copy of a car coupler proposition coming from one of our prominent railroads. It was a very remarkable document in its way—one of those jug-handled affairs that give one a very tired feeling.

To-day I send you a copy of a proposition just sent out by another prominent road. You will at once see that it is of another kind. It does not ask for couplers on trial. It does not ask for a year's time on payment for the accepted couplers. It does not ask for a year's use of couplers which may be returned at maker's expense. It asks, simply and directly, for a proposition from makers to supply 5,000 couplers subject to certain defined specifications. It is a business proposition asking for a business counter proposition. It is strictly business all through—while what I sent you last week is strictly boys' play.

I do not say that the specifications herewith are ideal. There is evidence of carelessness in their preparation, which prevents one from setting them up as a model. But there is such a refreshing contrast between the two documents that I think it should be shown in your columns.

The letter inclosing the specifications reads as follows:

Tenders are respectfully invited on 5,000 M. C. B. couplers as per specifications hereto attached. Said couplers to be delivered in carload lots to the railway at free of freight or switching charges, at such times and in such quantities as the railway company may specify.

The specifications are appended:

1st.—Couplers must couple and uncouple together freely with each other and with the master or sample coupler. These must also lock and unlock easily.

2d.—They must conform to M. C. B. maximum and minimum gages. The length must conform to M. C. B. standard drawing, and the rivet holes in the tail portion to conform strictly to the M. C. B. standard, Plate II, or to such drawings as may be furnished by the railroad company.

3d.—They must have steel knuckle pins at least 1½ in. diameter, and steel knuckles, and be furnished with complete locking and unlocking fixtures.

4th.—A maximum and minimum weight for complete coupler with knuckle will be given by manufacturers as a basis upon which inspection as to weight will be made.

5th.—The patent claims covering the coupler must be approved by the Western Railway Association.

6th.—The date of manufacture must be stamped or cast plainly on both knuckle and bar in some portion where it will not be worn off.

7th.—One sample coupler will be attached from each lot of 900, and it will be subjected to the following tests at works of the manufacturer.

Under drop test of standard weight, 1,640 lbs., with anvil resting in heavy foundation (details of which will be furnished).

Knuckle test. (Knuckle fitted in bar.)

Three blows from 10 ft.

Two blows from 15 ft.

Guard arm tests:

Three blows from 3 ft.

Three blows from 5 ft.

The drawbar or knuckle must break into two or more pieces

before it is considered to have failed under this test. The cracking of the parts will not be considered as a failure. A sample bar selected from any lot of 100 will be tested in the pulling machine at the railway company's shops, and must endure a load of 100,000 lbs. Any lot of couplers which does not meet either drop test, or pulling test, will be rejected.

M. C. B.

## The Democratic Element in Railroad Affairs.

TO THE EDITOR OF THE RAILROAD GAZETTE:

A railroad is an army, but then an army is no longer what it was; nor is a railroad as an organization of men military in its character, but an industrial institution of a democratic country. Comparatively few persons are aware how a different policy, that of Prussia and the German Empire, shows itself in practical railroad matters, especially those directly affecting the relations of officials to the passenger and the shipper. The incidents here related did not occur yesterday, but within the early manhood of men still young.

An American traveling in Germany took his valise to the forwarding office at a station and while a receipt was in preparation asked the rate to the point to which it was to be sent. Surprised at the charge, he told the agent that he had changed his mind. "But sir, I have begun to make out the receipt, you cannot change your mind." The passenger then gave his reason, the excessive rate. "I will have you arrested, sir." Another American replied to a similar threat, "I would like to see you have me arrested;" but in the end the unfortunate man forfeited twelve hundred dollars bail rather than await the serious chances of the trial.

The democratic polity of this country has and should have a considerable influence in railroad affairs, but there are, or have been, unfortunate phases of it. Said one friend to another, speaking of an eminent confidential attorney in charge of the legal interests of a great road, "He never bribed (?) men, but when an election was in progress he would send a check of some hundreds of dollars to candidates needing aid, and simply as a contribution to their necessary expenses of canvass; he never made subsequent claims on the account, either."

Said a railroad president, since dead, to the writer, at a critical period, "It is those fellows at — who are striking me; I do not want to influence legislation."

The subject has its delicate and dangerous aspects, but why should the issue not be met squarely? American railroads are in active and public service in a democratic country; they cannot afford to neglect the education of the people. They cannot conduct any part of their affairs without recognition of a democratic element, not existing, for example, in Germany. Open and intelligent dealing with the people can alone lead to permanently good results. When any grave question is under discussion it is of vital importance that the railroad side of it be fully and fairly stated, and in a form adapted to general reading.

Practically, in some departments, *e. g.*, the passenger department, it is remarkable how completely the democratic necessities are recognized. The good conductor is as fair as a court of equity in administering the rules of the road, with now and again, perhaps, a mistake not quite impartial. He acts as an officer, but the attempt to make him a mere official without discrimination has not met with permanent success.

In earlier days, especially in the West, the man often and necessarily corrected the rules of the road to fit its necessities, but that day has passed. The military necessities of railroad administration are imperative over a large portion of its working force, but in dealing with the public, the mere inflexible rule has never operated long. Hence the demand for a certain degree of character, and for all the checks of account in all those branches of service in direct contact with the public. "So and so's trips on certain days vary greatly in receipts, but he is an honest man, and I never suspect him." The passenger department could make a curious exhibit of democratic tendencies, and railroad necessities.

Proper railroad administration in a free democratic country demands character as well as administrative rules, and its questions a certain degree of publicity. It may do in Prussia to arrest a passenger who complains of rates; it must be in a free country that all disputed questions have open discussion. All other methods create suspicion, and, in the end, enmity. In fact, deeply absorbing as has been the administration of railroad affairs, it may be said that in certain ways they have suffered somewhat because the official interest was not deep enough. A kind of official sense of public station is needed in higher railroad service. The interests of the corporation, the interests of the entire staff, and also the public interests must have their representation in official life and official station. Nor have they been quite absent these many years.

A PRACTICAL SOCIOLOGIST.

## The Relation of Railroads and Their Officials to Employees.

BY ERNEST H. JOHNSON.

This general subject being always timely, its presentation in the summer, when some other topics are less pressing, will perhaps be regarded as allowable without an apology. To avoid vagueness, I will refer to the practice on the road with which I am connected (the New York Lake Erie & Western), in connection with such branches of the subject as seem best susceptible of treatment in that way.

1. Selection of Employees.—On the Erie we are governed largely by the law of supply and demand. This,

of course, will always have to be the paramount consideration, but it seems to me that unless under great stress to fill vacancies, it would be well to look into the past record of men, particularly where the applicant has before been employed as a railroad man. Under the present system of taking men as they come and are needed there is fostered a class of floaters (refuse generally from other remote systems) who are bad for the morale of the regular men and a source of expense and danger.

A printed form of application should be used covering all necessary qualifications as regards employment. Two stipulations are specially important: First, that the applicant shall be no more than 45 years of age, and, second, that he shall be able to read and write.

2. Training and Advancement.—We have in operation on the Erie the "train rule school" and "air-brake school." In addition, I would suggest that it be obligatory on all brakemen up for promotion for flagman, or firemen up for position of engineer, to be able to pass an examination in reading, writing and arithmetic, such as would get them through the primary department of common public schools. This would do away with the common and anomalous state of affairs of a flagman constantly having to handle way bills, manifests, etc., and yet largely dependent on his memory of what some one else, under or above, has told him of their contents. On the Erie, seniority is almost absolutely the governing factor in promotions. I think the system absolutely pernicious. No two men possess in equal proportion those qualities of energy, push, activity, good judgment and general intelligence, the greatest combination of which in the greatest number is absolutely essential to the best results; and such a rule is absolutely untenable. It dwarfs ambition and individuality. By the very preponderance of mediocrity it leavens the whole lump, leveling down to that plane of second-rate abilities which any scheme based entirely on the mere longevity of the men is bound to foster. Such a system, moreover, fosters discontent and desire for change in young men of ability and energy, who feel that however well they do their work, their future depends almost wholly on the death rate among their less active and energetic seniors. A system based on the service record of the men, coupled with recognition of exceptional evidence of good judgment and active energy in cases of emergency would give much better results.

3. Supervision and Discipline.—Supervision is usually in the hands of the Train Master, Assistant Train Master and Yard Master directly, and indirectly in those of the Superintendent, from whom all division orders emanate, and to whom all appeals are taken. This is about the only method of supervision possible on our roads, as now managed. One of the first essentials for an ideal service is a willing one. For a willing service it is absolutely necessary first, that the men shall respect a superior, and second, that they shall have a personal liking for him. Respect can be engendered in no more effective way than by the evidence on the part of an officer, of a perfect and comprehensive knowledge of the work done under and for him. And also by the enforcement (even to severity, if need be) absolutely impartially, of punishments for infractions of, or derelictions in duty. Nothing is more telling than a little of that fellow feeling which makes us all kin. A courteous habit of at least listening to the real or fancied grievances of the men, soon begets in their minds the conviction that if a thing is worth having it is worth asking for. And when those requests, when judiciously possible, are granted, a feeling of trust and confidence in the officer is fostered. Another potent promoter of zeal, is a kindly forethought for the comfort of the men when exposed at wrecks. The writer has in mind a very forcible object lesson where 20 men with "full bellies" were worth 40 half fed and dispirited men.

Punishment should be reduced to a minimum, and the past record of the offender taken into consideration. To do this with anything like completeness a debit and credit system would have to be established. Minimize the publicity to disciplined employees, as it will largely do away with the humiliation arising therefrom. Never discharge a man where there seems a possibility for reform, but once having discharged him, particularly for lying, continued drunkenness and general unreliability, never re-employ him. (See experience on the Indianapolis Division of the Pittsburgh, Cincinnati, Chicago & St. Louis, in a paper by Mr. F. G. Darlington, in the *Railroad Gazette*, March 15, 1895.)

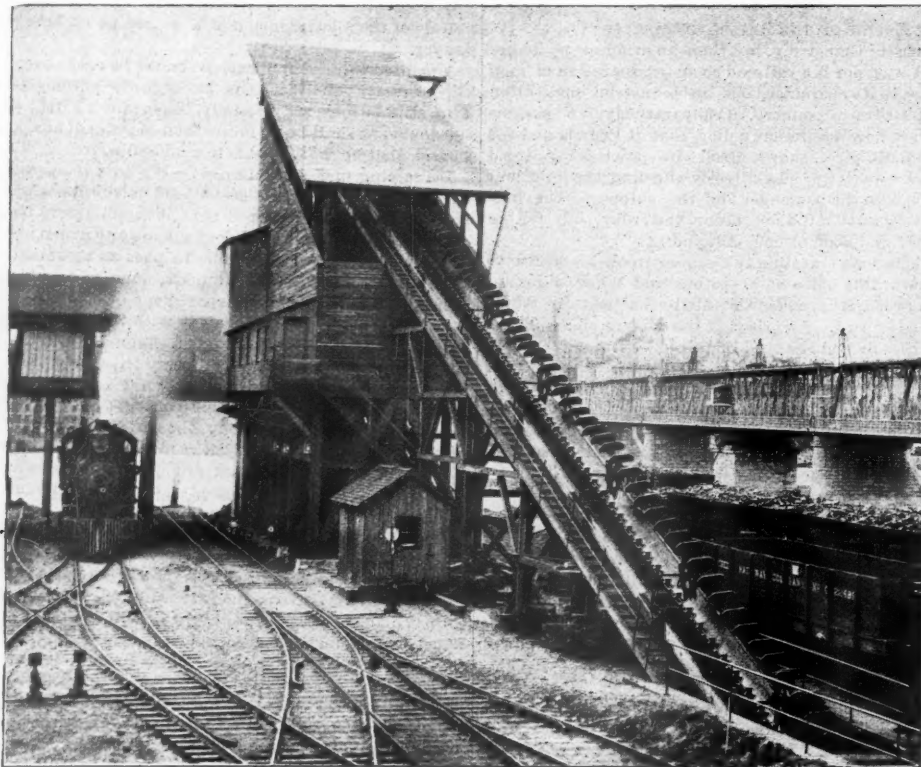
4. Premiums.—On the value of a service premiums, much can be said pro and con. It was, I believe, found effective on the Baltimore & Ohio among the section gangs proved to be a decided incentive to emulation without engendering serious jealousies. On the Pennsylvania, however, I have been informed it was stopped, as it seemed to cause considerable jealousy and ill-feeling, and tended strongly toward destroying all *esprit de corps*. Such a system to be successful would require absolutely impartial judgment in making awards.

5. Insurance, etc.—On the Erie, the system for "Relief" is, merely, that of half time for Transportation Department and hospital service during disability, for all employees, when injured while in discharge of duty. There is no provision for compensation for sickness nor for superannuation. On the Delaware division, in 1891 the money paid out for half time was \$2,200, and for medical attendance, \$1,150; for 1892, half time, \$1,625; medical attendance, \$1,375; for 1893, \$2,600 half time \$1,600 medical attendance, thus giving an average per year for half time of \$2,141, and medical attendance \$375. We have no pensions or insurance. In this day



of corporations, employing armies of men, two all-important conditions arise. First, on the part of the corporation, an absolute necessity for a large service of strong, active, zealous and skilled employees. And, second, on the part of the employees, an equal necessity for regular, self-supporting and encouraging employment.

itself at points where the company's interests will be subserved and protected. It is the almost unanimous testimony of the railroad company's officials that it would now be difficult, if not impossible, to inaugurate a general strike among the members of this association."



East Albany Coaling Station of the New York Central.

With our supply and demand in this country there is no large surplusage of skilled labor to take the place of any large number of such laborers, when out of employment on account of labor troubles and other dissatisfactions. We have under such conditions absolutely to depend on the riff-raff gathered together at the moment, for the continuance of business and the protection of our property. The desideratum is a generous co-operative policy, which will satisfy the natural wants of the men during their working life, take care of them while sick and disabled, and by their own co-operation shield them from want when superannuated, and provide for their families at least a start for a living competency after their death. I fully recognize the usual objections, but in England and on the Continent such a policy is admittedly a good one, as evidenced by the existence of a number of such societies. Among them are The London & North Western Railway Insurance Society and Superannuation Savings Bank; The Great Northern Providence and Mutual Guarantee Fund; The Great Northern Railway Benevolent Institution; The Great Western Railway Superannuation Society, all of England; the benevolent societies of the Chemin de Fer du Midi, of France, and many other continental societies. The Baltimore & Ohio Railroad inaugurated an Employees' Relief Association, June 3, 1882. It started with a voluntary membership of a little over 19,000, and for the five years of its life as an incorporated association had a sustained membership of something over 18,000, having under its various features distributed over a wide territory, more than \$929,940 in 42,930 separate payments. It combined in itself provision for the sick, injured, superannuated, and the families of members after death; a savings bank, building association, circulating library and other minor features. Its charter being repealed by the Maryland Legislature in 1888, the company continued it as a department of the road. Of the 20,626 members of the association in the employ of the company on March 31, 1889, 19,089 voluntarily became members of the department. In 1894, after six years of work, the membership had been increased nearly 3,000, over 800 houses had been built, 714 houses bought, 159 improved, liens released on 329 houses.

For fuller information I would refer to the paper of Dr. W. T. Barnard on "The Relations of Railway Managers and Employees," published 1886, copies of which can be had on application to Supt. S. R. Barr, at Baltimore. Dr. Barnard's and Dr. Barr's reports show a great fund of important facts. For example: "Through the system of medical examination of applicants, the improved sanitary condition of the shops; through the consideration and compensation paid employees when disabled, and through the prompt payment of sufficiently large death insurance, the standard of the service has been perceptibly raised. It is securing more efficient, skilled and unskilled labor, and has in some places drawn the best material from competitive works, and holds the force with less difficulty and worry. Thus the bond of friendly feeling has been strengthened between employer and employee, and a feeling of identical interest has been fostered. It has converted a proverbially migratory force into a permanent one, which is gradually locating

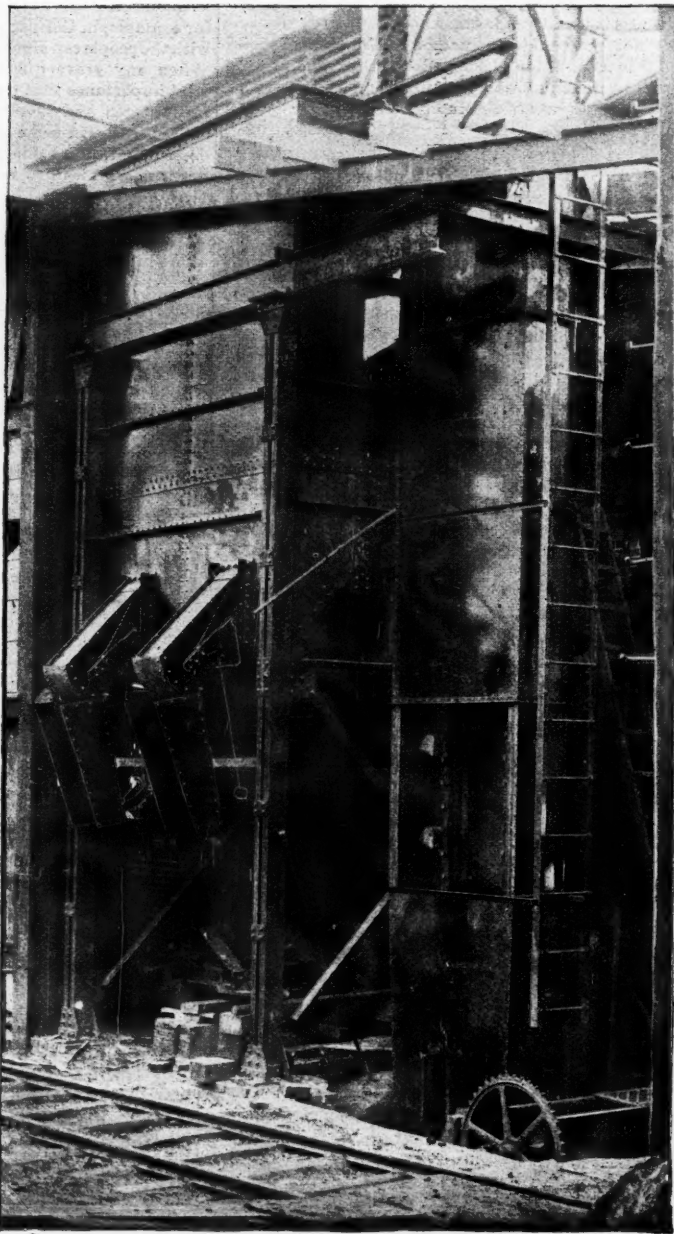
The Pennsylvania has a similar institution, apparently now in a flourishing condition and productive of great good among its men, a resumé of which appeared in the *Railroad Gazette*, March 15, 1895. That these two great systems, operating such a scheme, the one for over 12 years and the other for nine, have met with such wonderful success, certainly gives cumulative evidence of the wisdom of such policy, and absolutely establishes the feasibility of its operation in this country.

6. Provision for Comfort at Terminals.—On the Erie we have no provision for comfort. The men when away from home occupy their cabooses. For recreation the Erie has a branch of the Railroad Young Men's Christian Association at Port Jervis, and others elsewhere, for the support of which it largely contributes. The Port Jervis Y. M. C. A. has reading rooms, card rooms, billiard and pool tables and comfortable baths. We have a very good private hospital at Port Jervis. In Jersey City the company has an agreement with the Catholic Hospital of St. Francis, for the care of its disabled men. We have no schools or classes for the technical training of the men, unless the "air-brake school" be considered as such.

As regards comfort and recreation, there can in my opinion be no better investment by railroads, for the little money necessary to work such a policy, than in comfortable and commodious quarters at terminals for men awaiting orders. The Pennsylvania, fully realizing the benefits accruing to the corporation by such policy, have in their new Broad Street station fitted up a large general reading room 100 ft. x 50 ft., with a library

containing 2,400 volumes. There are in addition daily papers, periodicals, etc., and monthly magazines. A smoking room is provided, and all are furnished with comfortable easy chairs. The floor is tile and the walls handsomely decorated with pictures of noted views along the road, and also portraits of officers of the road. There are checker tables and writing desks where stationery is supplied free. In addition there is a bunk room with 40 beds. These are provided with hair mattresses on wire, and each bed has two down pillows. The linen is kept spotlessly clean by attendants. The beds are numbered from one to forty, and each man upon retiring signs his name at the first bunk number vacant and writes the train he is to go out on. An attendant gets each man up for his particular train. This is for passenger men only. There are also at Washington and Philadelphia and other places, arrangements made for engineers, firemen and trainmen on freight trains. In addition to this, the company have a restaurant at Broad Street station where all employees can get meals at cost. A very good wholesome dinner can be had for 15 to 25 cents. In Washington the company have two rooms, one 50 x 50, containing a library of about 600 volumes, papers, magazines, etc., and writing desks. Smoking is not allowed in this room, though in an adjoining room, 20 x 30, smoking can be indulged in, as well as checkers, chess and dominoes. In Washington the freight crews have a dwelling house, in which they have a cook-stove, bedrooms, and one room for loafing. Everything is kept scrupulously clean. With a system like this you have your men where you want them, and out of mischief, and the comfort and ease they enjoy renders them in prime condition for work after their rest, and assures active and zealous work from them. Moreover, the attractions thus offered gratis, tend to keep the men from knocking around in promiscuous and demoralizing quarters, which otherwise they would inevitably patronize.

The Erie has no school or classes for technical training, but it would be advantageous, I think, on railroads having young, educated men in the engineering department, fitting themselves for places in the executive, to have these young men act as instructors one or twice a week to the engineers and firemen (and others if desirous) in the mechanical and mathematical branches bearing on their work.



Ashes Handling Machinery at the Pencoyd Iron Works, Philadelphia.



**Some Recent Fuel Handling Machinery.**

The rapid increase of traffic on trunk and main lines during the past few years, leading to the employment of heavy draught and high speed locomotives, and calling for increased consumption of coal, has brought also demand for saving of labor and expense in fuel handling. Development of mechanical devices has kept pace with this demand, and practically automatic machinery is now employed to handle coal from cars or boats to engine tenders with a saving of expense frequently amounting to two thirds of that incident to manual labor. Like advantage is obtained by mechanical handling of coal for local delivery, and of ashes for removal, and we illustrate in this number a good example of each.

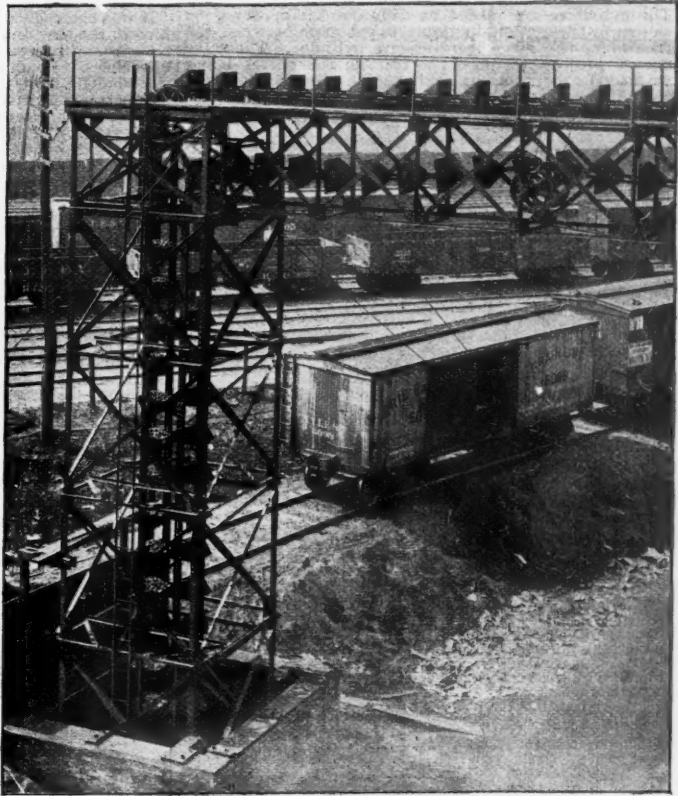
A model locomotive coaling station is that of the New York Central & Hudson River Railroad, at East Albany, one of three erected by this road during 1894. The structure and main mechanical features are clearly shown in the illustration. The coal (lump, anthracite or bituminous) is received in cars, which are drilled by engine or by the power winch provided for that purpose, into position over the track hopper. Dumped into this, the coal flows by gravity through a controlling gate into the 180-ft. Dodge chain conveyor prominently shown in the engraving. This conveyor carries the coal into the building, and over the six bins located under its roof, delivering it through discharge gates of special design, into any one of the six. From these bins, whose combined capacity is 180 tons, delivery is made to a weigh hopper and thence to small iron cars on the coaling bridge. These cars are then run out and dumped into tenders on any one of the tracks shown. The conveyor has an hourly capacity of 80 tons and the storing, weighing and delivering devices are harmoniously proportioned. The service of the station is rapid and economical. The plant was designed and erected by the Link Belt Engineering Co.

The very latest inventions in elevating and conveying machinery appear in the coal-handling plant lately completed by the above company for the New York, Lake Erie & Western, and now in operation at Buffalo. In this plant coal is received from cars as at East Albany, elevated vertically to a height of 40 ft., and carried horizontally a maximum distance of 310 ft., making one right angle turn in its course. The latter part of its journey is over a series of housed bins into any one of which it is

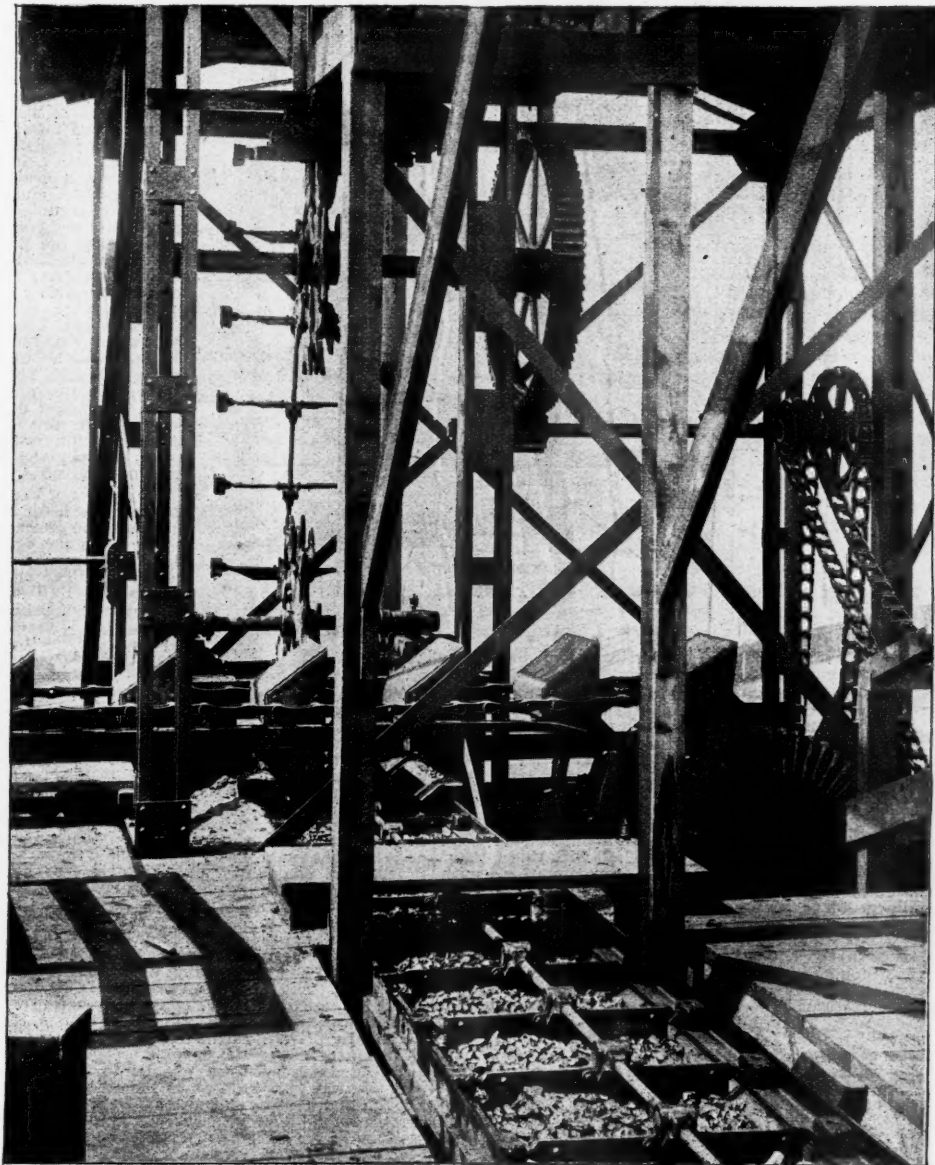
steel buckets rigidly secured to two chains of the design known as "Tubular." These buckets, after passing the head wheels, enter a horizontal steel trough and in effect become scrapers, delivering the coal at the turn to a 260-ft. Monobar conveyor, which runs to and over the bins. This conveyor is composed of a series of 1 in. x 18 in. bolts to which flights are secured, and is driven through a pair of compensating gears, which neutralize the jerky and destructive action of long pitch chains driven by circular gears. Power is supplied by an independent engine belted to counter shafts from which Ewart chains lead to the gear shafts of the conveyors. The operation of the plant is marked by the smoothness and ease with which it performs its service of handling coal at the rate of 60 tons an hour.

The mechanical handling of ashes has always proved difficult because the wear on machinery heretofore employed has been too great to make its introduction economical. Study of the problem by engineers has resulted in minimizing this objection, and an installation of machinery which has proved entirely satisfactory for this work is shown in the accompanying view taken at the Pencoyd Iron Works, on the Schuylkill River near Philadelphia. Beneath a line of grating set flush with the floor plates and in front of the battery of boilers, runs a 75-ft. heavy steel screw conveyor carried in special

a steel hopper, from which, through chutes, they are delivered to railroad cars for removal. The elevator chain is known as Ley's indestructible bushed chain and is of peculiar construction, the wearing parts being replaceable and consisting of case-hardened steel pins and bushings contained in malleable iron links. The plant



Coal Handling Plant of the N. Y., L. E. & W. at Buffalo.



Coal Handling Plant of the New York, Lake Erie & Western Railroad at Buffalo.

delivered as desired, and from which it is discharged by gravity as required for distribution to local trade.

The elevating of the coal and its conveying to the right angle turn is accomplished by a series of "V"-shaped

thrust bearings and surrounded by a steel casing. This conveyor, which receives the ashes as drawn from the furnaces, carries them to the foot of a steel-cased bucket elevator, which at a height of 30 ft. discharges them into

has been in regular service about seven months. All of the above described plants were designed and erected by the Link Belt Engineering Company, to which we are indebted for the illustrations, the machinery employed being all made by that company.

**The Latest Compound Locomotive of the North Eastern Railway.**

In *Engineering* of July 5 is a description with illustrations of the latest compound locomotive built for the North Eastern Railway (England) from the designs of Mr. Wilson Worsdell, of the North Eastern Railway, for heavy East Coast traffic, this engine, together with 20 non-compound of similar dimensions, having been built at the Gatehead Works of the North Eastern Railway Company. All these engines are employed in running the Scotch expresses between York and Edinburgh, the majority of them running between Newcastle and Edinburgh only. The load on this route is seldom less than 12 vehicles of the heavy East Coast class, while the still heavier class composing the dining trains make the total train load, with engine and tender, as much as 300 tons. The particulars of the dining-car train are given in the subjoined table:

Weight of Dining Train.		Tons.	Cwt.	Qr.
1 first-class diner.....	23	5	0	
1 third-class diner.....	23	2	3	
1 kitchen.....	19	9	0	
1 first-class.....	16	5	2	
2 third-class corridor.....	31	12	0	
2 brake vans.....	24	12	0	
2 extra carriages.....	32	0	0	
Sundries in kitchen and dining cars.....	1	0	0	
198 passengers at 1 1/4 cwt. each.....	12	7	2	
198 passengers' luggage at 1/2 cwt. each.....	1	19	0	
Total of 19 carriages.....	188	13	1	
1 extra third-class.....	16	0	0	
50 passengers at 1 1/4 cwt. each.....	3	2	2	
50 passengers' luggage at 1/2 cwt. each.....	1	5	0	
Total of 11 carriages.....	209	0	3	
A 11 No. 1619 engine full*.....	92	0	0	
Total with engine.....	301	0	3	

\* The 20 non-compounds weigh 91 tons when full.

No. 1619 has been running exclusively between Newcastle and Edinburgh, the consumption of coal since May, 1893, when the engine was built, to the end of February last, having averaged 30.38 lbs. per mile against an average of 33.35 lbs. for the 10 non-compound engines of similar class in the same "link" (that is, doing precisely the same work), thus showing a reduction of 9 per cent. in fuel in favor of the compound. The engine has, in fact, given complete satisfaction, and proved to be an economical engine in every respect.

The leading dimensions of this class of locomotive are given below, but a word as to the speeds on this route may be interesting. The time allowed for running the day Scotch express from York to Edinburgh, 205 miles, is 4 hours 15 minutes, exclusive of 10 minutes for stops at Newcastle and Berwick, giving an average speed of 48 1/4 miles per hour. Between York and Newcastle the

\* This engine has been used in the fast express service referred to in the *Railroad Gazette* of Aug. 16, but those trains are not hauled exclusively by compounds. †



speed is 50 miles per hour, between Newcastle and Berwick 49½ miles, and from Berwick to Edinburgh (in which section the gradients are heavier), nearly 45 miles per hour. The night express performs the whole journey in the same time, but on account of there being no stop at Berwick, the time actually running is 4 hours 20 minutes, and the average speed 47½ miles per hour.

The locomotive under notice is of the 8-wheeled 4-coupled type, with a 4-wheeled truck at the leading end. The cylinders are placed at different inclinations, as shown by the section, in order to get room between the frames for the large low-pressure cylinder. The valve chests project through the frames, the valves being worked through rocking shafts. The valve motion is of the ordinary lifting link type, fitted with screw reversing gear. The chief dimensions of the engine are as follows:

Cylinders:	Ft.	In.
Diameter of high-pressure.....	0	20
low.....	0	28
Stroke of pistons.....	2	2
Length of steam ports, high-pressure.....	1	5
Width.....	0	3½
Length of exhaust ports.....	1	8
Width of steam ports, low-pressure.....	0	2
Width.....	0	3½
Length of exhaust port.....	0	1½
Lap of valve, high pressure.....	0	1½
low.....	0	1
Maximum travel of valves.....	0	4¾
Distance apart of cylinders, center to center.....	2	0
From center of cylinder to valve face.....	1	9
Diameter of piston-rods.....	0	3¾
Length of side blocks.....	1	3
connecting-rods between centers.....	6	8

Wheels:	Ft.	In.
Diameter of driving wheels.....	7	1
trailing.....	7	1
bogie.....	3	7
Thickness of tires on tread.....	0	3
Width of all tires on tread.....	0	5½
Distance between center of bogie and center of driving wheels.....	11	0
Centers of bogie wheels.....	6	6
Center of driving wheels to center of trailing wheels.....	9	3
Distance from center of driving axle to front of fire-box.....	1	10¾
Distance from center of bogie to front buffer-plate.....	5	9
Distance from center of trailing wheels to back plate.....	4	5

Crank Axle (Steel):	Ft.	In.
Diameter at wheel seats.....	0	9
Diameter at bearings.....	0	8
center.....	0	7¾
Distance between centers of bearings.....	3	10
Length of wheel seat.....	0	7½
bearings.....	0	9

Trailing Axle (Steel):	Ft.	In.
Diameter at wheel seats.....	0	9
bearings.....	0	8
center.....	0	7¾
Length of wheel seats.....	0	7½
bearings.....	0	9

Bogie Axles (Steel):	Ft.	In.
Diameter at wheel seats.....	0	7½
bearings.....	0	6
center.....	0	5¾
Length of wheel seats.....	0	7¼
bearings.....	0	9
Distance between centers of bearings.....	3	7

Outside Cranks:	Ft.	In.
Diameter of crank-pins.....	0	3¾
Length of bearings.....	0	4
Throw of outside cranks.....	1	0

Frames (Steel):	Ft.	In.
Distance between frames.....	4	0
Thickness of frames.....	0	1
Distance between bogie frames.....	2	8
Thickness of bogie frames.....	0	0¾

Boiler (Steel):	Ft.	In.
Center of boiler from rail.....	7	11
Length of barrel.....	11	6
Diameter of boiler, outside.....	4	4
Thickness of barrel plates.....	0	0¾
smokebox tubeplate.....	0	0¾
Width of butt joint.....	0	5½
Pitch of rivets.....	0	2
Diameter of rivets.....	0	0¾

Firebox Shell (Steel):	Ft.	In.
Length outside.....	6	9
Breadth outside at bottom.....	3	11
Depth below center line of boiler at front end.....	5	8
Depth below center line boiler at back end.....	4	8
Thickness of front plate.....	0	0¾
back.....	0	0¾
slides and top plate.....	0	0¾
Distance of copper stays apart.....	0	4
Diameter.....	0	1

Inside Firebox (Copper):	Ft.	In.
Length at bottom, inside.....	6	0½
Breadth.....	3	2¾
From top of box to inside of shell.....	3	2¾
Depth of box inside at front.....	6	5½
back.....	5	5½

Tubes (Brass):	Ft.	In.
Number of tubes.....	225	
Length of.....	11	10¾
Diameter, outside.....	0	1½
Thickness, Nos. 11 and 13.....	B. W. G.	

Heating Surface:	Sq. ft.
In tubes.....	1,220
In firebox.....	121
Total.....	1,341

Grate area.....	Sq. ft.
Working steam pressure.....	180 lbs. per square inch.

Weight of Engine in Working Order:	Tens.	Cwt.	Qr.
On bogie wheels.....	17	12	0
On driving wheels.....	18	18	0
On trailing wheels.....	14	18	0
Total weight.....	51	8	0

Weight of Engine (Light):	Tens.	Cwt.	Qr.
On bogie wheels.....	17	14	0
On driving wheels.....	15	11	2
On trailing wheels.....	15	3	0
Total weight.....	48	8	2

Weight of tender, empty.....	Tens.	Cwt.	Qr.
The tender carries 5 tons of coal and 4,000 gals. of water.	19	6	0

# The Development of the Railroad System in Japan.\*

BY FRANCIS H. TREVITHICK, ESQ., M. I. C. E., ETC.

It was not until the year 1869 that the proposal to introduce railways was approved of by the Emperor, and His Majesty ordered a plan to be prepared for carrying out the scheme. Railways met, however, with such strenuous opposition from the large party which always endeavored to impede any progress toward Western civilization,

as well as with other difficulties which retarded the introduction of railways in England, and other countries, that it was only in the year 1870, that, thanks mainly to the persistent and enlightened efforts of Mr. (now Count) Ito, at that time Assistant Vice-Minister, and of Mr. (now Count) Okuma, then Vice-Minister of the Home and Finance Departments, that this great step toward the opening up and development of the country was eventually started.

It was decided to make a trunk line from Tokyo to Kyoto, the new and old capitals of the Empire, by the Nakasendo route, and thence to Osaka Kobe, with branches to Yokohama and Tsuruga, and to complete the whole in from three to five years. The work on the line between Tokyo and Yokohama was begun in April 1874, and that between Kobe and Osaka in November of the same year. The section between Osaka and Kyoto was commenced in December, 1873, and completed in February, 1877, when His Majesty opened the line between Kyoto and Kobe.

In April, 1878, the Government decided upon the extension of the line from Kyoto to Otsu, and the revival of railway extension began in 1878, but by no means to any active extent, as may be judged by the fact that some five or six years were spent in making less than 50 miles of railway.

At the close of 1883 the construction of the Nakasendo Railway was decided on, and the following remarks upon the Trunk Line between Tokyo and Kyoto being altered from the Nakasendo to the Tokaido may be of interest.

According to calculations made at the time when the construction of the Nakasendo trunk line was decided upon, the distance between Takasaki and Ogaki was estimated at 220 miles, the cost being set down at Yen

the branches, amounting then to the total length of 540 miles. That 20 years were spent in completing this work does not indicate great speed in construction, but this tardiness was in consequence of the times and was unavoidable.

This completes an outline of the Government Railways, and now the Private Railways must be considered.

A short mineral railway was constructed in Iwate Ken to supply fuel and iron ore to the puddling furnaces, built at Kama-ishi. The line was made in 1879, and the gage, 2 ft. 9 in., laid for the most part with flat-footed rails weighing 35 lbs. to the yard, spiked to cross-sleepers, and with fished joints. The gradients are heavy, the ruling gradient being an incline of 1 in 31 for two miles, on which are curves of five chains (330 ft.) radius. The three engines were manufactured by Messrs. Sharp, Steward & Co. in England, and are four coupled saddle tank engines, having a wheel-base of 5 ft. 9 in.; the diameter of the wheels 2 ft. 6 in.; the cylinders 12 in. x 18 in., and having a working pressure of 150 lbs to the square inch. The weight of each engine fully loaded with coal and water is 18 tons 15 cwt. As the working of the mines proved a failure, it was discontinued, and the rails and engines are now used on the Hankai Railway (Osaka to Sakai).

A few years back, the Government being willing to sell the coal mines in the Poronai District of the Hokkaido, also the railway, a company was formed and bought from the Government the mines and railway and it is now known as the Tanko Railway, and is one of the private lines, having a mileage of 204½ miles. There is another private line, called the Kushiro Railway Company, in the Hokkaido. It was constructed to carry sulphur from the hills to the river, and was opened for carrying passengers on the 1st September, 1892.

The first charter to a private company was issued in November, 1881, and it was called the Nippon Railway Co., and in accordance with the conditions agreed upon, the Railway Bureau was entrusted with the work of construction. In connection with this first railway charter, it is well to note a circumstance concerning which there appears to be some misapprehension. It may be generally supposed that the roads of the Japan Railway company were surveyed and built by the company itself, whereas the truth is that up to the moment when these lines were ready for traffic, the company had nothing to do with them beyond furnishing funds. The whole work was carried out by the Railway Bureau. The position of the Japan Railway Company was indeed a very happy one. It received from the Government the right to construct and own railways in certain populous districts; it received also a guarantee of 8 per cent. upon all its subscribed capital; and finally, the whole trouble and responsibility of surveying and constructing the lines was assumed by the Railway Bureau, the company stepping in and undertaking the management when everything was completed. The days are past when associations of capitalists can hope to obtain such privileges. The Japan Railway Company was, in a sense, the pioneer of private enterprise in this country, and it reaped a reward that looks large by the light of existing conditions.

The charter of the Nippon Railway Co. is for 99 years, although the guarantee of 8 per cent. on the capital by the Government is for 15 years only. The charter of the Hankyo Railway Co. is for 50 years; of the Ipo Railway Co. for 17 years; of the Ryomo Railway Co. for 20 years; of the Mito Railway Co. for 20 years.

As might be expected after the generous terms granted by the Government to the Nippon Railway Co. the spirit of railway enterprise grew quickly with the people and public opinion was soon in favor of the promotion of railways by private companies, and companies sprang into existence throughout the country. It may be said that by 1887 the spirit of railway enterprise had become almost a mania; 17 projects had by this time received sanction in accordance with the Government regulations; those that had carried on surveys on temporary license, and those that were surveying proposed routes amounted in 1887 to 17 companies with a mileage of about 1,375 miles, and a proposed capital of nearly 50,000,000 yen. By the end of March, 1893, the mileage of private railway companies then in operation was 1,319 m. 36 ch.; mileage of private railways either under construction, or for which surveys have been made and charters have been granted, and hence possessing the right of construction, was 611 m. 6 ch., making a grand total of 1,930 m. 42 ch. The mileage of all the railways in operation on March 31, 1893, was 1,877 m. 5 ch., of which 1,319 m. 36 ch. belonged to private railways, and 557 m. 49 ch. to the Government.

The advantageous terms granted to the Nippon Railway Co. were not granted to the other companies; all though in other ways help was given, in some cases a certain sum of money for every mile of line opened, besides receiving official support.

The Government has formed a Railway Committee of 21 members. These members represent the different departments of the Government, and special members represent other interests. When the committee is sitting it meets at the Teishinsho (Department of Communications), and all applications, plans, etc., for an extension of the present railway system, government or private, or for a new charter for new railways, are considered by this committee, and reported on to the Government.

\* Abstracted from the paper read before the Asiatic Society of Japan.

\* The actual value of the yen is very close to 81 cents.—EDITOR.



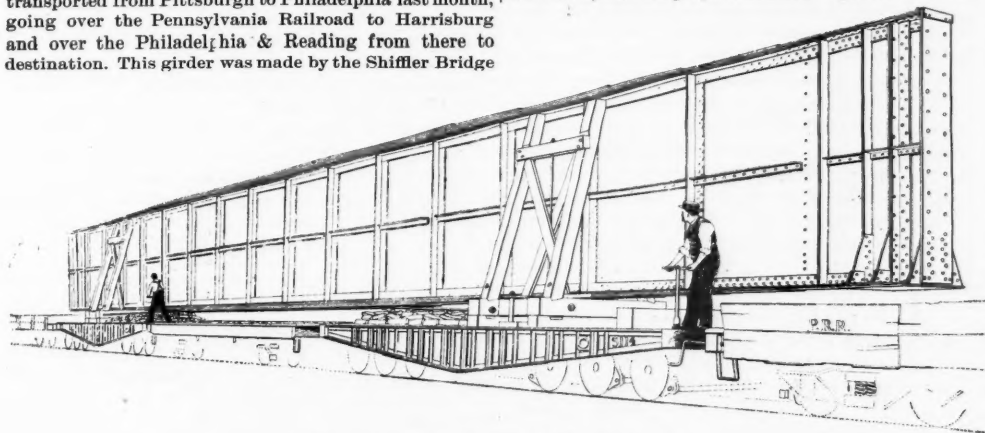
The standard gage is 3 ft. 6 in.; and no doubt this decision was greatly influenced by the discussion at the time taking place in England and India on the relative advantages of building all future railways of India on the metric gage. If the alteration of the gage from 3 ft. 6 in. to 4 ft. 8½ in. had been carried out in 1873, when there were not 40 miles of line laid, it would have been better; but not having been then altered, it is too late, now that there are over 2,000 miles of line laid, and for people to talk seriously about an alteration of gage at the present time is foolish, and at the same time only showing their ignorance of the question.

The great earthquake which occurred on the morning of Oct. 28, 1891, has caused the railway engineers to consider the effect of earthquakes when making their plans for bridges and other structures.

The Tokyo-Kobe Railway suffered greatly from this tremendous earthquake, on the section between Hamamatsu and Maibara (Hamamatsu 167 m. 56 ch., and Maibara 284 m. 32 ch. from Tokyo). The railway embankments within this district sank at 45 different places, and some of the greater depressions measured over 13 ft. in depth. The ground was cracked at innumerable places, and the rails were shaken out of position to the extent of being forced at many places to assume a serpentine shape. Sixty-three bridges, including the large bridge over the Kiso, with nine spans of 200 ft.; the Niagara, with five spans of 200 ft., and four spans of 100 ft.; and the Ibi, with five spans of 200 ft.; and the wing walls of 41 culverts, were wrecked. The abutments of many of these bridges were split right through, and in some cases the piers were demolished, and the superstructure overthrown into the rivers. The buildings at all the intervening stations suffered to a greater or less extent; some were totally destroyed, others were left in inclining positions, and none escaped scatheless. Indeed, the destruction wrought by this earthquake, particularly between Atsuta and Ogaki, was so appalling as to be indescribable. The expenditures on account of repairing the damage to railway property caused by this great earthquake represents the large sum of Yen 472,016, from which inference may be made of the extensiveness of the damage wrought. To this must be added the loss of revenue caused by the through traffic being suspended during five months.

#### Transporting a 123-ft. Girder.

The illustration printed herewith shows a girder 123 ft. long, 9 ft. 10 in. high and 22 inches wide, which was transported from Pittsburgh to Philadelphia last month, going over the Pennsylvania Railroad to Harrisburg and over the Philadelphia & Reading from there to destination. This girder was made by the Shiffler Bridge



Transportation of a Girder 123 Feet Long.

Co., of Pittsburgh, and is a part of a bridge which the city of Philadelphia has since erected over the Philadelphia & Reading tracks at Sixth street and Allegheny avenue. The girder weighs about 100,000 lbs. It was carried on the two iron cars with stiffened sides, as shown in the cut, the car in the middle and one at each end being idlers. The cars supporting the load are each capable of carrying 100,000 lbs. Lighter cars would have supported the weight, but these were used with the object of keeping the center of gravity low.

There was one accident on the road, but it did no harm. The method of supporting and carrying the girder was entirely adequate, but as the cars were equipped with trucks with inside boxes moving in pedestals, the load while passing over the curve at Dornoc Point, on the Pittsburgh Division of the Pennsylvania Railroad, was concentrated sufficiently on the journals on one side of the cars to press down the boxes as far as they would go. This allowed the cars to tilt over so far that the girder fell off. It fell clear of the train, however, and was not damaged. It was reloaded and transported on its side to Altoona, both main tracks being kept clear for it. At Juniata shops, Altoona, it was reloaded in upright position in the same manner as before, the truck boxes were carefully blocked top and bottom, and the cars were ballasted with pig iron, as shown in cut, to still further lower the center of gravity. The load rode safely thence to destination, though there was considerable lateral vibration. It will be observed that the two transverse timbers, placed beneath the girder on each supporting car, were provided with center plates and side bearings, fitting into and upon corresponding parts on timbers bolted to the car bodies. The upper timbers were held at right angles with the girder by rods extending about 10 ft. toward the center of the load, and fastened to the girder. The vertical iron rods seen in the frame bind the upper transverse timbers and the framework extending to the top of the girder, making one complete structure for both sides of the girder. The heavy timbers beneath the two transverse timbers were intended to check violent oscillations.

#### Electric and Steam Road Competition in Maryland.

The Pikesville, Reisterstown & Emory Grove Electric Railroad was formally opened to traffic on May 20. This line is an extension of the Pimlico and Pikesville electric

road, except that it is owned and operated by a separate company, and it is a part of the proposed trolley railroad between Baltimore and Gettysburg. It was built for the accommodation of the people who spend the summer at the campgrounds in Glyndon and Emory Grove, as well as the crowds who flock thither on Sundays and special occasions. By means of this extension a new route is opened up for local travel about 20 miles in length, and that part of the line above Pikesville is the first long-distance electric railroad to be equipped in Maryland wholly outside of Baltimore.

At present passengers from any part of the city are carried on the Traction Company's lines to Retreat street, where they transfer to the Pimlico and Pikesville railroad. Thence they are carried 7½ miles to Pikesville where a second transfer is made to the cars of the "Emory Grove Road," the latter being 11 miles long. The Pimlico and Pikesville railroad was originally a horse car line, extending from the old city boundary to the racing grounds at Pimlico, with a branch running up to Pikesville. This line, which never paid expenses, was acquired by the Traction Company in 1891, and was immediately fitted out electrically, going into operation July 25, 1892. In 1890, the pool rooms in Baltimore were closed by law, and others were opened at Pimlico and West Arlington. This provided a large volume of passenger traffic to these points, and the new electric railroad became popular. The accommodations to Pimlico created a call for similar privileges to Arlington, and in 1893 the Traction Company built a branch road from Pimlico to that point. This road accommodates the patrons of the racing track, as well as a large and increasing population living in that handsome suburban town.

In 1891 some of the stockholders of the Emory Grove camp ground conceived the idea of building an electric railway from Baltimore to the "Grove." The Western Maryland Railroad was the only means of communication with the city, except the old Pikesville and Reisterstown Turnpike for carriage driving. Several meetings were held, and the project assumed a practical form in

machine tools are placed throughout this building, considerable time would necessarily be lost if each mechanic had to walk to the tool room, get his tool, waiting more or less, and then return to his work. To do away with this, the different machine tools are grouped in stations, at each of which is a blackboard and a push button which connects with an annunciator in the tool room. In the tool room is a diagram showing the number and grouping of each station. Each mechanic is provided with six brass checks numbered with his own number, which is also put on a diagram or bulletin board opposite his name. When he wishes a tool he steps up to the nearest station, presses the button and writes his number on the blackboard. He is answered by a messenger boy, of whom there are eight in the tool room, who learns what tool he wishes and brings it to him, taking one of his checks for it. This check is deposited in the place of the tool, and is returned to the mechanic on the receipt of the tool again in the tool room. Four machinists are employed in the tool room repairing and making tools.

In the shop is a special department for testing steam gages, pop valves, spring governors, etc., which are tested and a record kept before sending them out. The testing machine is kept locked in a case, the key of which is in the possession of the head man.

An injector testing machine is also provided in another place. This has been found necessary for the reason that an engineer frequently becomes dissatisfied with his injector for no apparent reason but a freak of his own, and reports to the roundhouse foreman that his injector is out of order. Then it is taken out and returned to the shop for repairs. This occurred so often that the testing machine was put in. Now, before taking the injector apart for an examination it is tested, and if found all right the engineer is called upon to explain. It is needless to say that the number of bad injectors has decreased.

An air-brake instruction and testing department is provided, in which engineers and firemen are occasionally instructed, and all pumps and triples are tested before they are applied.

Pneumatic tools are used to some extent. Air hoists are employed at the large planers, lathes, etc., where heavy work is done; pneumatic machines for drilling and tapping staybolt holes, and screwing in staybolts. A pneumatic staybolt breaking machine is also used. In connection with the hydraulic ram for putting wheels on axles is a pneumatic attachment for quickening the work. On account of the small size of the piston in the force pump the travel of the plunger of the ram is slow. To quicken the movement of this before reaching the work where a great pressure is needed, air pressure is applied on top of the liquid and the plunger is forced out quickly until the point is reached where a large pressure is needed. Then the air is shut off and the force pump is started. Air under pressure is used for an oil burner, which heats the steel tires preparatory to their removal. The tire is surrounded by a sheet iron casing through which the burner projects, and the tire is quickly heated and removed, at a cost of only about four cents for fuel. The air supply for these and other appliances is now furnished by three Westinghouse pumps, which are compounded. The first two pump air into a receiver from which the third pump takes its supply. By this means a higher pressure is realized than possible with the available steam pressure, which is about 60 pounds.

There is a very neat machine for cutting off bad ends of boiler tubes. It consists of a small shaft about four feet long, on one end of which is a pulley which is belted to the overhead line of shafting, and on the extremity of the other is a reamer. A circular cutter is on this same end just back of the reamer. The bearing of the shaft near the pulley is swiveled so as to permit a vertical motion of the cutter end. Near this other end is a second bearing also swiveled and held in a crosshead working between vertical guides. To the top of this crosshead is attached a screw with a hand-wheel for raising or lowering it. The whole machine rests on a bench which is long enough to contain nests for the tubes also. The tubes are inserted in the machine, and the cutter while revolving is gradually screwed down until the end is cut off. At the same time the tube revolves and a man files off the rust and scale from the opposite end. The whole operation takes about four seconds.

The general plan and description of these shops was given in the *Railroad Gazette* of Feb. 9, 1894, and they are marvels of neatness and good arrangement. The whole tract of ground where the shops are located, about 160 acres, has been recently fenced in with a high board fence. The construction of the new car shops is being rapidly carried on.

On one of the locomotives now undergoing general repair the Lewis valve gear is being put for trial.

Four of the suburban locomotives have been equipped with Pintsch gas headlights, and are giving satisfactory service.

#### Oil Fuel.

The Southern Pacific Co., according to the *San Francisco Chronicle*, is equipping a number of suburban engines with oil-burning apparatus. These engines will run from Oakland to Berkeley, Alameda and other points within a short distance of the terminus. It is stated that crude oil can be brought from Los Angeles and delivered in Oakland for about 75 cents a barrel. It is further stated that the coal now used by the Southern Pacific in the region of San Francisco costs \$4.50 a ton.

#### Shop Notes—Illinois Central.

The locomotive repair shops of the Illinois Central Railroad have many devices and tools for facilitating the work.

The arrangement for distributing and collecting tools from the tool room instituted by Mr. J. W. Luttrell, Master Mechanic, is good, and is an example of how time may be saved in a large shop of this kind. The machine shop is a building 550 ft. long and 160 ft. wide. As the





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## EDITORIAL ANNOUNCEMENTS.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting, and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers, can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Everybody remembers Sidney Smith's cure for railroad accidents. Or perhaps a generation to which "literature" means the shallow pathological studies of erotic young women and degenerate young men, has forgotten Sidney Smith, and we will venture to quote him. "We have been, up to this point, very careless of our railway regulation. The first person of rank who is killed will put everything in order, and produce a code of the most careful rules. I hope it will not be one of the bench of bishops; but should it be so destined let the burnt bishop—the unwilling Latimer—remember that however painful gradual concoction by fire may be, his death will produce unspeakable benefit to the public. From that moment the bad effects of the monopoly are destroyed; no more fatal deference to the directors; no despotic incarceration; no barbarous inattention to the anatomy and physiology of the human body; no commitment to locomotive prisons without warrant." Since Sidney Smith wrote things have greatly changed in England; and the safety of the man who travels by rail is hedged about by legal provisions so elaborate and so costly that they have, as many of us believe, seriously hindered railroad development in that country, and have thus become a burden, not alone to the railroads but to the public. In this country too the law has played some part in securing to travelers reasonable safety from train accidents. We have, however, still a peril unknown in any other country that is called civilized. That is the peril to trains, both passenger and freight, and the perils to passengers and trainmen from malicious persons. These include the tramp who infests the most populous regions and plunders and terrorizes; the citizen who wrecks a train because his cow has been killed; the professional train robber, and even the small boy who throws stones for mere mischief. We have long held that the civil authorities are responsible for these criminals and semi-criminals, and that a state or county which does not protect railroad property and people who are traveling by rail from the assaults and depredations of the lawless is not civilized. The recent experience of an ex-Governor of Ohio, a man still active in politics, gives us some hope. Three weeks ago we noted the fact that his face was cut by glass from the window broken by a stone thrown through it. In this country the social effect of wounding a political ex-governor might be greater than that of assaulting a bishop, and we may hope that some such result may follow the accident which we have mentioned, as Sidney Smith expected from the burning of a bishop, if the ex-governor is badly enough hurt. But we fear that more distinguished martyrs must suffer before the civic conscience is thoroughly aroused.

It is said that the Chicago and Ohio River lines will next week make another attempt to agree upon some kind of a contract for handling competitive passenger traffic. As has been noted in these columns, the passenger agents have held a number of meetings to

consider the subject, but have always found it impossible to get a sufficiently large majority in favor of any one plan to encourage the hope that any workable arrangement could be established; and it is said that the meeting next week will be a meeting of general managers. The last meeting of the passenger agents seems to have been brought to naught by the legal advisors of the railroads. The passenger agents had come to the conclusion that nothing short of a pool would be agreed to by all the lines interested, and decided that they would form one, but the several agents, on going to their respective counselors, were told that a pool would be illegal. This is the statement as given by the Chicago reporters. It is quite likely that among the railroad lawyers consulted there were some who did not take this summary view, but if even a few of the roads chose to except this decision, and act upon it, the prospect of reaching an agreement would of course be wholly destroyed. On the simple question, whether a passenger pool is or is not legal, there seems to be a good deal of unnecessary confusion of statement. The law on this point says:

Sec. 5. That it shall be unlawful for any common carrier subject to the provisions of this act to enter into any contract, agreement or combination with any other common carrier or carriers for the pooling of freights of different and competing railroads, or to divide between them the aggregate or net proceeds of the earnings of such railroads, or any portion thereof; and in any case of an agreement for the pooling of freights as aforesaid, each day of its continuance shall be deemed a separate offense.

While the pooling of earnings of any kind would be contrary to this law (although some astute traffic men claim that with the context as it is, the clause should be read "aggregate or net proceeds of the freight earnings"), it would seem to be equally clear that the pooling of passengers is not prohibited. It would have been easy to insert after "freights" the words "or passengers," and it would have been equally easy to have used the word "traffic" in the place of either or both of these. The use of "freights" and the omission of "passengers" must be assumed to have been deliberate and intentional—unless, indeed, we conclude that the final draft of the law was made by some careless person who had no very clear notion of what he was trying to prohibit. We do not say, of course, that, because it is legal to pool passengers, the Chicago and Ohio River roads ought to form such a pool. The overs and shorts of a passenger pool cannot be very promptly settled by physical diversion of traffic, even by the aid of changes in differential fares; and if the temper of these roads may be judged by the present apparent temper of most other roads, such a thing as getting the losers to wait two or three months for the recompense due them for losses in passenger traffic, or any other kind of traffic, is entirely out of the question.

In another article we have discussed, in a vein which, we trust, is not too profound for summer, "Occultism in Railroading." Possibly the reader of that article may accuse us of seeing mystery in some places where none exists. But there is one department of railroading where there does exist a good deal of mystery which we are often inclined to believe ought to be called humbug. We refer to arbitration in traffic disputes. The proceedings in many such cases are as formal and dignified as the great seal of the United States, attached to a finding about the seals in Bering Sea, and as big as a balloon—and about as empty of anything weighty. The skill with which experienced arbitrators can take the rule-of-thumb and dress it up as an instrument of precision, scientific and teeming with inherent authoritativeness, is a sight to excite wonder in the humble freight agent's commonplace mind. It is right, of course, that business affairs of financial magnitude should be accompanied by a decent degree of éclat, but we often feel like commiserating the men who have to get up the ceremonies. The latest arbitration to be discussed in public is that over the passenger fare from East St. Louis to Kansas City, which has been hanging fire several weeks. We do not mean to say that this case illustrates all that we have just said, but it is in some respects a typical case, especially in the final outcome. The St. Louis *Republic's* report, evidently from Alton sources, says:

All sorts of reports have been published regarding the fiasco in the arbitration of the difficulty between the Alton and Wabash on the passenger rate between East St. Louis and Kansas City. It would appear the arbitrators themselves did not care to decide the main question, which was whether the Alton had a right to make a \$7.25 rate from East St. Louis to Kansas City, the rate from St. Louis to Kansas City being \$7.50. The arbitrators themselves injected into the discussion the technicality of exactly what it was they were to decide. Without objection from either side, they could have taken the wording of the case as it came to them originally. In a letter to the two roads they probably gave their true reason for not going ahead in the inquiry whether both would agree to abide by the result of the arbitration. Neither road answered this question finally. The Alton was certainly ready to proceed on almost any terms; the Wabash, late in the argument, accepted a version proposed by the arbitrators and not acceptable to the Alton, and the arbitrators themselves refused to proceed

on the original version to which both roads had agreed before the arbitrators themselves offered objections. On the one side was the right claimed by the Alton to make the rate. On the other was the alleged demoralization in through rates and the loss to other lines. Neither line agreed to abide by the decision, and the arbitrators appeared more than willing to hang fire on a technicality raised by themselves.

The arbitrators do not want to decide, the parties do not want a decision; I will if you will, if you won't I shan't; and the result is that the situation is to be restored to the condition it was in before the disturbance began; the Wabash is to stop selling tickets in East St. Louis at the St. Louis rate and the Alton is to stop selling such tickets at less than the St. Louis rate.

The talk about "rights" in this case is meaningless, of course. Neither road has any right in the premises which the other is bound to respect. The Wabash may rightfully sell tickets wherever it can afford to establish an agency. The Alton, running trains from St. Louis, through East St. Louis, to Kansas City, certainly may treat East St. Louis as a way station and charge less for tickets than is asked for them at St. Louis. It is true that an Alton train starting from St. Louis for Kansas City, first travels a number of miles off toward Lake Superior, but that is not the first place where a circuitous route has fought for business, and it is as true now as for 50 years past, that a circuitous route can afford to forego a big share of the net earnings on a passenger rather than let him go by the shorter line, and thus lose all the revenue to be derived from him. The whole thing sums up, as the *Republic* says, in the simple problem, rights vs. demoralization. Maintain your rights and spoil your profits—both your own and your competitors', or give up some part of them and live at peace. And the question how much to give up probably could be decided by these arbitrators, or by any three experienced traffic men, or by any one such man, in one day as well as in two months, if only the parties would recognize at the outset, as generally has to be admitted by all finally, that the arbitration must depend upon the native sense of justice of the arbitrator. Technicalities and statistics have their place, but they are outweighed, nine times out of ten, by the arbitrator's judgment concerning elements that cannot be determined with accuracy.

## Occultism in Railroading.

"The time of cryptograms has gone by; there will be none in the new epoch." At least Mr. Morison says so, in speaking of the present and the future of the engineering profession. To a great extent this is doubtless true, and yet it is only partly true. There are still solemn humbugs who sit up and pretend, and know nothing; but they are getting pricked one by one, and their gaseous contents flow away, leaving the more or less substantial envelope considerably wrinkled and fissured, but still recognizable. Indeed, the engineer is in this especially favored among men. His opinions are so constantly liable to the swift and remorseless action of the laws of gravitation that he cannot afford to fool himself and cannot succeed long in fooling others.

Other professions have larger opportunities for humbug and still cultivate superstition; but even among editors and ministers the day of the cryptogram is passing—at least we think so. The editor who sits and solemnly wags his head over what he knows nothing about still lives and prospers, it is true, but we think that in the average editorial we see from year to year a larger percentage of sound argument and accurate statement of known facts and a smaller percentage of assertion, exhortation and that muddy secretion which sometimes passes for "thought."

"A practical sociologist" who writes in another column suggests that in a democracy the railroads should cease to cultivate the mysterious and should take the public into their confidence. We have little doubt that this is good doctrine in the main, and in fact have long held that about the only good that the railroad commissions in the United States, and the Railway Department of the Board of Trade in England have ever done has been in letting in the light of publicity on railroad theory and practice. The effects of this publicity on the physical aspect of railroading are well known in England and in some states of the Union. Bridges, signals, buildings and all permanent structures, as well as rolling stock, have been more or less affected by the work of the Commissioners and Board of Trade inspectors in revealing to the public the conditions and practices existing among the various railroads. To some extent, accounting has also been affected by this influence; probably in the future it will be affected more.

It has often seemed to us that the railroads would gain by taking the public into their confidence in matters of traffic agreements. It would be disagreeable at first, but perhaps well in the long run, if the public could know who are the railroad officers who



are wilfully obstructive to forming and living up to traffic agreements. It would be well, doubtless, if the names of those who sign agreements simply to break them, could be published far and wide. It would probably do good to let the whole public know, not only the precise terms of the traffic agreements, but precisely the reasons why one after another breaks down. Of course many people, more or less on the inside, do know these things; but the great mass of security holders and patrons do not. The immediate results of publicity would, as we have said, be disagreeable, but we cannot help thinking that they would be wholesome in the end; for after all, it is only a superior kind of man who can trust himself or be trusted by others to live entirely in the dark. We question if we have ever known more than half a dozen men in whom we would put so much confidence as that.

There is another evil hinted at by our practical sociologist, to which this principle of publicity could perhaps be applied with good results, but the preliminary steps would be a good deal more disagreeable than in the case of the traffic agreements. The philosopher quotes a certain railroad President who said to him, "It is those fellows at the Capital who are striking me. I do not want to influence legislation." Precisely so. High officers of all sorts of great corporations all over the United States are saying the same thing—"These fellows at the Capital are striking me, but the Lord knows that I would a great deal rather have nothing to do with legislation, only I am obliged to corrupt legislators in self defense." Under existing conditions this may be true, but we have often thought that those conditions need not exist. If one or two railroad presidents and if one or two presidents of great insurance companies should revolt absolutely and irrevocably against being blackmailed; should say to the blackmailers, "If you keep on we will publish abroad the whole history of our past relations with you and all that we know of your past relations with other corporations," the first result would be a great scandal, and the next result would be the annihilation of the whole brood of strikers and the destruction of their nefarious trade.

Of course we expect no such step to be taken. There are many and very powerful reasons why it should not be taken. The man who has in charge, as a trustee, the interests of a great body of stockholders and bondholders would naturally shrink from an experiment so sure to be costly at first and carrying with it such possibilities of long and serious trouble, even if his own personal relations have been absolutely without reproach. We should like immensely, however, to see the experiment tried and to see the roof lifted off some of the state capitols.

Everybody who believes in the progress of the race and who believes that a thousand years from now man will be a more moral creature than he is to-day, is bound to believe that such a policy as we have suggested—a policy of candor, honesty and fearlessness, would win in the end; but, alas, no man can live in ideal conditions.

#### Car-Load Rates for Bulky Freight.

The complaint of the Chicago furniture manufacturers, that they have been singled out by Western roads as the victims of an unexpected advance in rates has considerable basis of reason. It is, in substance, that the Western classification committee has raised furniture to second class from third class, thus adding 10 cents to many rates from Chicago, while from St. Louis the rate remains where it was, thus making a difference of 20 cents instead of 10 cents against Chicago. Part of the injustice is offset by a reduction of the minimum weight per car to 10,000 lbs., but this is by no means satisfactory to the shippers. The larger manufacturers have their own cars of large size which will hold twice as much as the minimum. Consequently they simply have to pay a higher rate without any corresponding advantage. The classification committee adopted a ruling on light and bulky vehicles which the furniture men say ought to have been made on their product. The classification on vehicles was not changed, but it was decided to use a 45-foot car as a basis and add or subtract five per cent. from the rate for each foot the car varied from that measurement. Many of the roads were in favor of this ruling on furniture, the complainants say, but the one adopted was the only one of half a dozen proposed which received the necessary two-thirds vote.

We do not blame the furniture men. The furniture car has come to be a big nuisance. We do not know but these same complainants are partly responsible for the existence of the nuisance, but no one can be surprised at their present attitude, in view of the illogical and slipshod way in which the railroads go to work to meet a well recognized evil. As far as competition with St. Louis is concerned no one but the parties im-

mediately interested can form a fair opinion, for the rival claims must be settled on grounds of expediency, without very close attention to ideal justice; but the method of adjusting the rate to the size of the car is clumsy and inequitable at both places, as well as everywhere else in this country.

This clumsiness is due to unnecessary modifications that were introduced into tariff making years ago, and the injustice of many rates is due chiefly to attempts to utilize this as a means of rate cutting, more or less secret—as though there were not enough secret devices in vogue already. Bulky freight must be charged for by the space it occupies, whether we disguise the fact or not; but the desire to show the total traffic for the year in pounds led to the adoption of assumed weights, in place of cubic feet: and the desire to make the average receipts per ton per mile appear as small as possible at the end of the year, led managers to make the assumed weight high, rather than make it lower, with a higher rate per pound or ton.

We do not mean to say that the furniture car is necessarily a nuisance. On the contrary, a wide and high box car is necessary to the economical transportation of bulky articles, except where there are so few shipments of that kind that the care of a separate class of cars is so troublesome that it is cheaper to use an additional number of ordinary size cars. But if the methods of the traffic departments in making rates for transportation in large cars cannot be improved, there is little question that it would be better to cut them all down to standard box car size: for the tendency to carry all the freight that any shipper can crowd into any kind of car, at the normal rate for what would go into an old 30 ft. car, seems to be increasing. If we may judge by the widespread discussion and complaint, it is increasing rapidly.

It seems doubtful whether this evil can be dealt with like other kinds of rate cutting. In ordinary rate making each traffic manager is free to adopt almost any method of compromise that is proposed. He can adopt the other fellow's plan as rationally as to bring the other fellow around to his plan. But if we admit that large cars are an economic necessity, the road which finds it expedient to use them must insist on rates for them. It cannot justly settle a rate controversy by leveling all rates down to cars of 1,200 ft. or 1,500-ft. capacity. And it would seem that there ought to be as many rates, or minimum weights, as there are sizes of cars.

It is true that it is an advantage to the carrier to carry ten tons of furniture in a single car rather than be obliged to carry it in two cars of five tons each, and the charge should not, therefore, be twice as high as for ten tons of other freight, equal in value and other respects, but only half as bulky; but when once a basis is fixed for furniture it should be carefully varied to suit the cars, and not be roughly applied to all large cars, as is so generally done. A 36-ft. car is larger than one 34 ft. long, and a 40-ft. car is larger than either; and even if the differences were smaller than these they ought to be recognized. Loose methods, ignoring small differences, are the delight of the rate cutter, and they must be changed if a rational rate basis is to be introduced. A horizontal change like that reported from Chicago is only a beginning. The change made in the rate on buggies much more nearly meets the case, and the furniture men are right in demanding similar treatment for themselves.

#### Show Your Tickets!

Some one signing "C. S.," writes in the New York Herald as follows:

"Last Saturday on one of America's greatest railroads a train, composed of parlor cars only, left Grand Central Depot, the first stop being Catskill station, 112 miles north. Every seat on this train had been sold before the train started, and the money for the passage tickets and seats was in the offices of the company. Now comes the American style on one of its trunk lines and one of its first-class trains. First, each passenger ticket was inspected and punched by a station doorman; then inspected and passed by an officer at the steps of the car; after the train passed out of the depot, the conductor passed through and took up tickets and coupons for Catskill: the parlor car conductor then passed through and took up seat tickets, exchanging them for another ticket or check; finally the porter passed through and took up the checks. Is this an exemplification of the highest and best thought in connection with the passenger service of the best roads in this country?

Well, no; the highest and best thought, from the passenger's standpoint, is exemplified at 138th street, New York City, where the express trains of the New York Central stop at the platform in such a situation that any one can step aboard the cars directly from the street without leave from any one. This is the situation at hundreds of way stations, where the privilege of getting on at the last moment, and even after the train has started, is highly appreciated by the passenger. It is especially appreciated by some people who travel mostly to and from small stations and often evade the conductor when he is collecting tickets. Long experience with

such passengers has led the railroads to make rigid rules, and the gist of the question presented by C. S. is, Can these rules be suspended in such a case as that of the Catskill train?

Readers of the *Railroad Gazette* know that it believes in doing everything within reason for the comfort and convenience of passengers. Such treatment not only meets the ideals (after they have been clarified) of C. S. and the editor of the *Herald* and social philosophers generally, but it pays. It cultivates the right frame of mind in the trainmen and other employees and qualifies them to earn more money for the company. We should be glad, therefore, to encourage C. S. to labor with the officers of the New York Central if we thought his case a good one; but let us see.

Of the five annoyances mentioned, the first is the demand of the doorman. Now, presumably, the specific thing complained of here is the necessity of taking the ticket out of the pocket. Quite likely, in case of a train like this, the road would be willing, as with "commuters," to take the passenger's word for it; but these are not regular passengers, and cannot know beforehand that the rule has been relaxed, and so, if they are in a hurry, they will get out their tickets on approaching the door, as for an ordinary train. How can they be notified beforehand? If they are not in a hurry, why object to showing the ticket? Trains fully loaded for one destination are not common enough to enable passengers to get used to them. Commuters are familiar with all the customs and surroundings, and that is the justification for relaxation of rules with them.

The porter at the car step must see your ticket in order to show you to your proper seat; this, we presume, is not objected to; and what C. S. would like, we suppose, would be to have the conductor and the parlor car conductor finish their business with him at the same time. But we are not sure that this would suit the majority of the passengers. Certainly the two ticket collectors ought to deal with the passenger at the same time, when it is practical to do so, but surely they must be allowed some little time, where the different passengers have several different forms of tickets, which must be examined, and this time, in the form of a delay at the car steps, would prove inconvenient in many cases. We rather think the majority would prefer the present custom. The final collection, by the porter, seems unnecessary in the case of a full train for one destination; but as he generally allows you to leave the check on the window sill or wherever you please, and whenever you please, the annoyance is hardly worth noticing.

However we may try to alter the conditions, some allowance must be made for the fact that a railroad is a big concern and must employ machine methods. We are well aware that small concerns learn better and more quickly how to improve small details, but small establishments lack permanence, and the public at large does not get the benefit of their ingenuity. Large corporations often try too hard to have details performed by unintelligent men, so as to reduce cost, and that is a proper consideration; and it is probable that this saving really inures to the benefit of the passenger to a considerable extent, so we must not look upon red-tapeism as wholly bad. If the New York Central relaxes a rule at New York it must consider the demand for similar relaxation that will come from a dozen other cities.

As we have recently had occasion to say, the removal of physical hindrances is a chief desideratum in considering the convenience of passengers who are seeking to enter a train at a large station. This is accomplished by making wide passageways and appointing (in many cases) two gatemen where now there is one. Gatemen are necessary, even for our friend's Catskill train, for there are always people who must be kept off from the train, however great the intelligence of those who get on. If the gatemen are men of sufficiently good judgment we are inclined to think that "C. S." will generally find that he could more profitably devote his energies to some worse grievance, say the ventilation of the cars. We are somewhat familiar with the work of the Grand Central station gatemen who attend to suburban trains and they seem to be very discreet in detaining only such passengers as appear to be unfamiliar with the surroundings. Possibly "C. S." might properly request the company to extend this laxity to the through trains a little more. But to do this gracefully he should have refrained from "sassing" the road through the *Herald*.

The fast runs between London and Aberdeen which we reported last week are the subject of a report in the *Engineer* of Aug. 9, which is more detailed than that from which we quoted. This account is by Mr. Charles Rous-Marten, who is an experienced observer of railroad speeds, and whose writings have been before noticed in these columns. Mr. Rous-Marten gives few important facts other than those already published by us, but he evidently rode through on the fast trains several times, and his account includes four schedules, two by each line, with interesting details as to the engines, delays, etc. He says that although the East Coast route is 17 miles shorter than the other, it is not the easiest one to get over. The trains have to back into the station at Newcastle, and there are many miles of single track and numerous awkward curves on the North British section; trains cannot run far without a stop, and finally, the last 40 miles, from Kinnaber Junction, is over the Caledonian, the hostile road. The West Coast Line has track tanks, and the first run, to Crewe, without a sto-



is 158 miles; the second, to Carlisle, is 141½, and the third, to Stirling, 117½ miles, thus making 417 miles with only two stops. The train which reaches Kinnaber Junction first, of course goes into Aberdeen first. The London & North Western uses for the first stage of the journey the Mercury, with four drivers 78 in. in diameter. With a load of 112 tons this engine runs the first 58½ miles in 60 minutes, the grade being for most of the distance 16 ft. per mile ascending. Sixty miles an hour is made for 10 miles at a stretch on this grade. The same train is hauled on the Caledonian line by No. 90, a similar engine, designed by Mr. Drummond. This engine takes the train up a grade of 70 ft. per mile at 34 miles an hour. On the East Coast Line, where the trains are much heavier, two engines are used on some parts of the journey, but engines with only one pair of drivers, 7 ft. 7 in. in diameter, and with cylinders 18 in. x 26 in., did some of the best work here. Referring to maximum speeds Mr. Rous-Marten says:

"In no case was any higher velocity attained than I have noted times without number by the ordinary express trains on the respective lines, nor were my previous recorded maxima either attained or closely approached. The East Coast once touched 80 miles an hour, the West coast 78; but as a rule the running speed was somewhere about 60 miles an hour, very evenly maintained, and rarely exceeded 70 to 72 miles an hour under the most favorable conditions. The feature of the race, as in that of 1888, has been the maintenance of high velocities for long distances and uphill. When the loads and conditions are compared with those of the race of 1888, it will be recognized that the locomotive work of the present season has been enormously superior. On that occasion very light "specials" were run at average maximum speeds which have often been equaled by heavier ordinary expresses over particular lengths of the lines, whereas in this case it is the ordinary heavy expresses that have achieved such splendid results.

With regard to the matter of ease in running, [riding], my experience is that with these trains—on both routes—as in former instances of fast work, the steadiest running is at the highest velocities. In one case some slight oscillation was set up at 53 miles an hour, and reached its maximum at 57 to 58. When the speed reached 60 the oscillation decreased, and at 65 miles an hour it had ceased altogether. At 70 to 75 miles an hour the steadiness was absolute. At the same time the superiority of bogie coaches to six-wheeled stock has been made very apparent, and the lesson will doubtless bear fruit."

In a recent issue we noted the fact that the Chicago Great Western was paying its station agents partly by commissions on tickets. The change is more radical than that statement would indicate, the commission being on the entire business of the station, except that interchanged with other roads. This action of the Chicago Great Western is of particular interest just now because it is taken at a time when business is likely to increase. When both work and earnings are increasing, station agents, as well as other employees, begin to have thoughts of higher pay, and if the improvement continues the manager is, of course, disposed to grant their wishes, so far as possible. But, hitherto, advances of wages on railroads have almost universally been according to what, in tariff law parlance, is called a horizontal advance. The increase has been made by fixed percentages to efficient and inefficient alike. We have many times called attention to the desirability of paying men according to their several individual abilities and have urged the importance of being ready to make the change, from the arbitrary plan to this method, whenever the conditions of business warrant an increase in pay. The present action of the Chicago Great Western conforms to this theory. The new rates are so adjusted as to make an increase in the aggregate, thus allaying the anxiety that the agents naturally feel when a change is ordered. The circular of General Superintendent Shields is such a good example of comprehensiveness and brevity that we quote it in full:

Evidences of the early return of prosperity to the country have determined this company to increase the compensation paid to its agents. In carrying out this determination the compensation of agents will be established on such a basis as will advance those agents most who succeed best in developing the resources of the country tributary to their stations, and who demonstrate their ability to secure traffic.

Commencing with August the compensation of agents will consist of a fixed salary, somewhat less than has been paid previously, and in addition a commission on freight forwarded, freight received, ticket sales, excess baggage, switching and demurrage; but not on business interchanged with a foreign road at their station, excepting switching. This plan on the light business of the past year will increase the aggregate amount paid to agents 6 per cent., and with a larger business such as we have a right to expect in the future, the increase will be much larger.

It is the belief of the company that it is within the power of the agents to increase their business, by being prompt and polite in dealing with customers, by soliciting their business at the proper time and with discretion, and by notifying the proper officers of any defects in our service, facilities or methods, or any improvements by competing companies.

The payment of commission will enable agents to participate in the increased prosperity, thus introducing the co-operation principle into the most important part of the railway service.

Therefore, from and after Aug. 1, you will receive as agent at ——— station, a fixed salary of \$—— and in addition a commission of ——— per cent. upon the earnings of the company at said station as above outlined.

Most of the stations on this road are quite small. The fixed salaries vary from \$15 to \$40 a month. In deciding upon the percentage to apply at each station the business of that station for the past four years was used as a basis.

Tables showing the gross and net earnings of the railroads for the half year ending June 30 have been compiled by *Bradstreet's*. For 145 railroads the gross earn-

ings for the half year show a gain of 3.6 per cent. over 1894, which year, however, had shown a decrease of 16.4 per cent. from 1893. The net earnings of the same roads show this year a gain of 8.1 per cent., following a decrease in 1894 of 18.8. The following little table shows the change by groups and percentages:

	Gross Earnings—		Net Earnings—	
	1895.	1894.	1895.	1894.
Granger.....	Dec. 7.7	Dec. 17.6	Dec. 3.4	Dec. 7.4
Central Western, Inc.	9.8	Dec. 16.0	Inc. 25.0	Dec. 21.4
Trunk.....	Inc. 6.9	Dec. 18.8	Inc. 8.1	Dec. 19.3
Eastern.....	Inc. 12.4	Dec. 15.4	Inc. 23.2	Dec. 13.5
Coal.....	Inc. 5.3	Dec. 16.3	Inc. 1.0	Dec. 16.5
Southern.....	Dec. 1.4	Dec. 10.4	Dec. 7.1	Dec. 8.7
Southwestern.....	Inc. 2.8	Dec. 21.5	Inc. 16.0	Dec. 40.6
Pacific.....	Dec. ....	Dec. 5.3	Inc. 9.1	Dec. 26.5
Total.....	Inc. 3.5	Dec. 16.8	Inc. 7.5	Dec. 17.9
Mexican.....	Inc. 7.3	Inc. 1.6	Inc. 23.0	Inc. 8.8
Total.....	Inc. 3.6	Dec. 16.4	Inc. 8.1	Dec. 18.8

It will be noticed that there were decreases in every group of railroads in the United States both in gross and net in 1894, the greatest decrease in gross having been 21.5 per cent., for the southwestern railroads. In net earnings the greatest decrease was 40.6 per cent., in the same group. This year the greatest decrease in gross is found in the granger roads, 7.7 per cent., while the greatest increase is 25.0 per cent., for the central western roads, the grangers showing a small decrease here also. Considering the individual railroad systems which go to make up these totals, about two-thirds show gains in gross and in net, and one-third show decreases.

The action taken by the Chicago Elevated Terminal Company in filing an intervening petition praying for an injunction to restrain the Atchison reorganization committee from foreclosing until it has settled with the Terminal Company, is not believed to be a serious obstacle to the reorganization scheme. The action of the Terminal Company follows a bill brought by the Union Trust Company to set aside the contract of sale and lease whereby this property was acquired by the Terminal Company. The way in which this peculiar transaction was carried out has already been set forth in these columns. The general opinion is that if the case comes to trial the Atchison will win. It may, however, have the effect of delaying the foreclosure of the mortgage unless a compromise is reached and the petition withdrawn, which may happen.

#### NEW PUBLICATIONS.

*The Technograph.* Published annually by the Engineers' Societies in the University of Illinois.  
*Transactions of the Association of Civil Engineers of Cornell University.*  
*Papers read before the Engineering Society of the School of Practical Science, Toronto, 253 pp., 1894-95.*

These three pamphlets are of a sort which has become well known in the past few years. That is, they make available some of the best results of the organization of the students in the technical schools for mutual benefit. *The Technograph* contains 14 papers, making in all a volume of 182 pages. The papers are on a great variety of subjects, and are prepared by undergraduates and by members of the Faculty. One of them is Efficiency Tests of an Electric Street Railway. Another is a Discussion of Formulae for the Laying out of Railroad Crossing Frogs; another, which should be of value, is an analytical study on the Design of Electro Magnets. These are merely the titles of a few. A long paper is on the old subject of Railroad Surveying by a graduate of 21 years' standing.

The Cornell publication is made up principally of non-resident lectures, and includes well known and distinguished names and lectures on important subjects. General Craighill, for instance, lectured on River Improvements, James Owen on Water-Works for Small Towns, C. C. Schneider on Details of Construction of Engineering Structures, and R. E. McMath on the City and the Engineer. Other lecturers were Professor Gore, Mr. Geo. W. Rafter, General Francis A. Walker, Mr. Isham Randolph and Mr. C. P. H. Bassett.

Since 1885, when the students of the School of Practical Science, Toronto, Ont., founded an engineering society, their annual publication, containing papers read at their meetings, has become quite a volume. The number for the year 1894-5, contains several well written articles. The most interesting paper is perhaps, that upon Aerial Mechanical Flight, by C. H. Mitchell, a compilation of much valuable information concerning that absorbing problem.

The variety of subjects treated is wide, and embraces papers upon Hardening and Tempering of Steel, The Use of Asphaltum in Engineering Construction, The Country Roads of Ontario, The Ventilation of Sewers, The Maintenance of English Roads, etc. In all, there are 17 papers, not including the address of President A. E. Blackwood.

*Annual Report of the City Engineer of the City of Providence for the year 1894.*

The annual report of Mr. J. Herbert Shedd, City Engineer of Providence, for the year 1894 is received. The office of the City Engineer is well equipped with meteorological instruments, and the report has tables showing the depth of rain and melted snow which fell during each storm, and the duration of each storm in hours during the year. This table is a continuation of 17 similar tables, covering the period from 1877 to 1893, inclusive, that were published in earlier reports. A summary is given, showing the number of times, from 1877 to 1894, inclusive, that the depth of rainfall of each storm has been nearest to a series of amounts ranging from 1.50 of

an in. to 8 in. Another table shows the monthly and annual depth of rain and melted snow from 1832 to 1894, inclusive; also the amounts that have fallen from Jan. 1 to the end of each month during each year. Other tables show daily observations during each month. There are also tables of monthly temperatures since 1880.

Tests of the crushing strength of the various brands of sewer pipe used in Providence are made from time to time, and the report contains a description of the method of making these tests and statements of some of the results. The tests run from a minimum of 1,363 lbs. per foot of length for 8-inch pipe to a maximum of 2,093 for 18-inch. The lowest and highest breaking weights range from 757 lbs. for 8-in. pipe to 2,401 for 18-in. Sixty-six tests were made of pipes from 4 to 18 in. in diameter by breaking them with hydraulic pressures. The highest pressures obtained were, for 18-in. pipe, 65 lbs. per sq. in.; 15-in. pipe, 174 lbs.; 12-in. pipe, 138 lbs.; 5-in. pipe, 225 lbs. The maximums for other diameters vary considerably from these figures.

The construction of new bridges during the year called for a good deal of work from the department. The Francis street bridge, a very important structure, has three river spans of 34 ft. 4 in. and 30 ft. 2 in. in the clear. The superstructure is all wrought iron and steel and consists of 17 lines of plate girders placed about 10 ft. 2 in. apart on centers. Above the girders, supported on shelf angles riveted to them, is Pencoyd steel flooring, leveled up to grade by bituminous concrete. The concrete is covered with 1½ in. of asphalt to make a water-tight covering. The driveway was then coated with Trinidad asphalt and paved with 6-in. granite blocks. It was expected to secure a practically water-tight floor and protect the iron work from rust. This bridge is designed for a working load of 100 lbs. per sq. ft., and for a concentrated load of a 20-ton steam road roller. Its total area is about 17,160 sq. ft., making it one of the largest of the city bridges. It was designed in the city engineer's department and constructed under the supervision of that department and is a very handsome structure. Other bridges of some importance have been designed and partly built.

#### TRADE CATALOGUES.

*The Latest Designs of Machine Tools for Working Plate, Bar and Shape Iron and Steel.* Hilles & Jones Co., Wilmington, Del.

The Hilles & Jones Co. has issued a pamphlet made up of illustrations from photographs of the company's latest designs of machine tools. No description or list of prices is given, but the pictures are interesting. The cover of the pamphlet was evidently designed by one of the modern poster artists who would be considered by Nordau as a degenerate. Although confused, it is brilliant and striking.

*Car Lighting.*—The Safety Car Heating and Lighting Company has recently issued a little pamphlet, very prettily illustrated, setting forth some of the merits of the well-known Pintsch system of car lighting. There are some 60,000 cars in the United States and Europe now equipped with this system, and, as is probably well known, it has extended to India.

*The Buckeye Malleable Iron and Coupler Co., Columbus, O., 1895.*

A number of good illustrations and sufficient text display the merits of this coupler. Illustrations also serve to show the company's passenger equipment, in two forms, parts of car platforms, brake wheels, etc. Records are given of coupler tests.

*Springs for Street Railroads.*—The Charles Scott Spring Co., of Philadelphia, sends us a new catalogue of springs to be used on street railroads. It shows a great variety of elliptical and helical springs.

#### Tests of Malleable Cast Iron.

The admirable paper by Mr. H. R. Stanford upon "Malleable Cast Iron," which we published last week, may be supplemented by the following abstract from a paper by Andrew G. Ashcroft, C. E., and published in the Proceedings of the Institution of Civil Engineers of Great Britain, session of 1893-94.

The specimens of malleable cast iron in special thin shapes to facilitate decarburization were tested by gradually increasing loads, for tension, compression, torsion and bending.

*Tension.*—Loads were applied to six specimens, giving stresses varying by 2,000 lbs. per square inch up to the breaking point. The extensions obtained were, as might have been expected, between those of cast and wrought iron. The first set gave an average of 1.47 per cent., the second, 2.8 per cent., on a 10-in. length. Wrought iron would give about 20 per cent. and cast iron about 0.5 per cent. on that length. The numerical results are given in the accompanying table.

*Compression.*—The test specimens, being thin, were very short, to prevent buckling. The modulus of elasticity came out somewhat less than in tension. Tables of numerical results are given below.

*Bending.*—The specimens tested for bending were placed over two knife edges, 10 in. apart, and a scale pan slung by a stirrup to the middle of the span to carry the weights. The deflections below the limit of elasticity were measured by a lever multiplying 50 times. The results showed a mean calculated breaking load in outer fiber, per square inch, of 75,863 lbs. The calculated



modulus of elasticity was 28,494,000 lbs. per square inch. The pieces averaged 1.339 in. broad and .297 in. deep.

**Torsion.**—The specimens were 7 in. long and about 0.6 in. in diameter. The results were very uniform. The average calculated breaking load in the outer fiber per square inch, was 58,650, the final twist on a length equal to the diameter, 26.3 degs., and the calculated modulus of elasticity, 9,346,000 lbs. per square inch.

The results in the following tables are from tests of two grades of iron—each grade being averaged separately:

TABLE 1.—TENSION TESTS OF MALLEABLE IRON.

Area.	Limit of elasticity per square inch.	Breaking load per square inch.	Ratio of limit of elasticity to breaking load.	Modulus of elasticity in lbs. per square inch.	Extensions measured on a length of 10 inches.
Sq. in.	Lbs.	Lbs.			Per cent.
0.403	20,000	46,000	0.435	24,630,000	1.60
0.395	23,000	50,000	0.460	24,510,000	1.20
0.387	22,000	45,000	0.489	24,510,000	1.60
Av. 0.395	21,670	47,000	0.461	24,560,000	1.47
0.384	20,000	43,640	0.458	27,180,000	2.50
0.408	20,000	46,800	0.427	25,390,000	3.40
0.408	20,000	48,000	0.417	25,500,000	2.90
Av. 0.400	20,000	46,150	0.434	26,020,000	2.80

TABLE 2.—COMPRESSION TESTS OF MALLEABLE IRON.

Area.	Length.	Breaking load per square inch.	Modulus of elasticity in lbs. per square inch, as determined from beam specimens.
Sq. in.	Inch.	Lbs.	Modulus.
0.364	2.963	48,240	20,110,000
0.360	2.950	49,620	20,300,000
0.358	2.964	44,360	21,280,000
Av. 0.361	2.959	47,410	20,663,000
0.323	2.925	55,980	19,040,000
0.299	2.930	42,300	22,960,000
0.318	2.925	51,000	26,880,000
0.318	2.930	41,630	.....
0.324	2.930	48,520	.....
Av. 0.316	2.928	48,386	22,960,000

#### Railroad Legislation in Connecticut.

The Connecticut Legislature of 1895 passed about 20 acts affecting railroads. Connecticut is one of the smallest states, but the legislative mill seems to be a vigorous one, at least so far as concerns the topic under discussion.

Chapter 2 is the well-known law of Jan. 22, forbidding street and steam railroads to cross each other at grade. Chapter 45 amends Section 1383 of the General Statutes so as to require suits against railroads for damages for loss of life to be brought within one year after the death of the person. Chapter 72 imposes fine and imprisonment, not exceeding \$500 and one year, or three years without fine, for injuring or destroying wires, poles or other apparatus of electric railroads.

Chapter 74 amends Section 3923 G. S. so as to require railroad companies to report annually how much capital stock has been issued or exchanged for purchase of stock or obligations of railroads outside the state. This act applies to the years 1893 and 1894, as well as to the future. Chapter 87 amends Section 1471 G. S., and imposes fine and imprisonment, not exceeding \$500 and one year, for throwing or shooting missiles at cars; also amends Section 1472, and imposes fine and imprisonment for willful injury of an engine or car; also amends Section 1517, imposing fine and imprisonment for unlawfully, maliciously and in violation of duty or contract, unnecessarily stopping, delaying or abandoning any engine, train, street car, etc.; also amends Section 1519, and provides a penalty, not more than \$20, for evading payment of fare.

Chapter 108 amends Section 1320 G. S., regulating the appointment of Receivers. Chapter 113 prescribes fine and imprisonment, not exceeding \$500 and one year, for stealing or embezzling tickets. Chapter 120 concerns repairs on highway bridges over railroads; where a street railroad uses such a bridge it must keep in repair the planking on and between its tracks. Chapter 123 regulates rates of fare on Sunday trains. On trains lawfully run upon that day the regular week day fare must be collected, but this is construed to allow the use of commutation, season and mileage tickets. The penalty for issuing reduced rate tickets is \$50 for each violation. Section 3526 G. S. is repealed.

Chapter 133 gives to the railroad commissioners the exclusive power to regulate the speed of steam railroad trains within the limits of cities and boroughs. Chapter 138 regulates the acquirement and holding by corporation of the securities of other corporations. No corporation shall hold its own stock except on the approval of the stockholders by a three-fourths vote.

Chapter 139 regulates the blowing of locomotive whistles. When town or city officers petition the railroad commissioners, the latter, after hearing, may order the sounding of the whistle dispensed with, and require any other signal in lieu thereof. Sections 3558 and 3559 G. S. are repealed, but orders made under them shall remain in force, unless modified by the commissioners under the present act.

Chapter 175 prescribes the method of serving legal process on foreign corporations. Chapter 176 requires notice

of suit for damages for personal injury against steam or street railroads to be given within four months after the neglect complained of. Chapter 185 enacts that the provisions of sections 3460, 3461, 3462, 3464, 3465, 3466, 3467, 3471, 3472, 3476, 3479, 3486 and 3387 of the general statutes and of Chapters 262, 263 and 264 of the public acts of 1893 shall be deemed to be a part of the charter of any corporation authorized to construct, own or operate any steam railroad.

Chapter 213 prescribes imprisonment not exceeding 10 years for breaking and entering railroad cars. Chapter 223 permits street railroad companies to petition for the removal of grade crossings of streets and steam railroads, under the law of 1889 permitting municipal authorities to make such petition. Where a town thus petitions, the railroad commissioners may order a part of the expense to be paid by a street railroad using the crossing, the latter having leave to appeal to the Superior Court. Chapter 229 prescribes procedure for the winding up of the affairs of corporations. Chapter 232 allows a railroad company, where it has got control of three-fourths of the stock of another railroad, steamboat or bridge company, etc., on approval of the Superior Court, to get the minority stock appraised and thereafter to compel the owner to sell. A minority holder may also apply for appraisal in the same manner, and the company must then buy the stock at the price fixed.

Chapter 239 creates a State Board of Mediation and Arbitration of three members, who are to be paid \$5 a day and expenses. Chapter 240 prescribes rules for the sale of property held on storage. Chapter 276 authorizes the railroad commissioners to change the location of a highway upon petition of a railroad company, if the present location endangers public travel, but the railroad must pay the expense. Chapter 332 empowers the railroad commissioners to prescribe the manner in which street and steam railroads shall cross each other by means of frogs. The railroad last authorized and constructed must bear the expense.

The acts affecting street railroads, other than those already noted, are as follows: Chapter 135 regulates the issue of orders by selectmen for a change of grade in highways. Such an order must be issued only by a majority vote of all the selectmen, after a public hearing. Chapter 192 requires street railroads to make annual returns similar to those required of steam railroads, and the same are to be published annually by the railroad commissioners. The provisions of Sections 3,589 and 3,590 G. S. shall apply to street railroads. Section 14, Chapter 169, of 1893, is repealed.

Chapter 221 empowers the railroad commissioners to require guard rails on highway bridges where electric railroads cross, and gives the railroad commissioners exclusive jurisdiction in ordering fenders on street cars. Chapter 283 regulates the action of municipal authorities in their action on petitions of street railroad companies, and authorizes appeals to the Superior Court. Chapter 330 limits the amount of bonds that may be issued by street railroad companies. No street, cable or electric railroad company, chartered after the close of this legislature, shall issue bonds under the act of 1893, for more than half the actual cost of the construction and equipment of the road.

#### The Ireland Building Inquest.

The inquiry into the cause of the wrecking of the Ireland building at West Broadway and West Third street, New York, proceeds slowly, and little has been done as yet toward fixing the blame upon the proper person or persons.

Mr. H. W. Brinckerhoff, the well-known engineer, of this city, who has made an examination of the wrecked structure for the iron sub-contractors, J. B. & J. M. Cornell, reported on Tuesday last that he considered the probable cause of the accident to be inadequate foundations under the pillars. Mr. Brinckerhoff said:

"I found the foundation under the columns to be 9 ft. square. Besides the iron plate there was one foot of stone and one foot of concrete. This was entirely too shallow, especially when laid upon such yielding earth as I found the soil to be. In view of the character of the soil, it would have been stronger, perhaps, if it had not been so broad. The fact that it was fractured shows that the transverse strain was too great for the foundation to support."

Mr. Brinckerhoff further said that he found the thickness of the concrete a scant 12 in., and that he thought that if 18 in. had been laid the transverse strength of the foundation would have been doubled. In reply to a question, Mr. Brinckerhoff said that he would have made the foundation both broader and thicker, at least 3 ft. thick. Further questioning brought out the fact that the stone under the base plate was not a good one, and not granite, and that the sinking of the foundation had been going on for a considerable time before the accident occurred. Mr. Brinckerhoff gave it as his opinion that the mortar and plaster loads upon the floors were not excessive. He said that there were about 500 tons weight on the broken pillars, and as there were no marks of an impact on the head of the central column, he thought the collapse was caused by pressure from above. The breaking of the other pillars, he said, had nothing to do with the fall of the building. The break in each of those pillars was a square one, and a majority of them were broken on line.

These fractures were caused by material falling upon the pillars, and not by pressure. They were broken so

squarely across that they were still capable of carrying considerable weight. The shifting of the core in one of the columns, as he saw it, would not affect its carrying power. There must have been a sag of probably 4 in., he thought, in the building before the central portion fell.

The 12-in. concrete foundation was put down in distinct violation of the law providing 18 in. as a minimum thickness.

The committee appointed by the Board of Walking Delegates to investigate the collapse, has made its official report as follows:

"We found the mason work in fairly good condition with the following exceptions: The West Broadway front slightly bulged and the foundation under the center column defective, the column being driven 7 ft. 6 in. into the ground through a 2-in. iron base plate, 11-in. foundation stone (Greenwich rock), and 1 ft. of concrete. In the opinion of the committee the foundation under said column was not sufficient to resist the weight placed upon it. We found two brackets broken off the columns, one on the fourth and one on the sixth floor. The latter appeared to contain a flaw. We found the majority of the bolts in base of columns to be too small, and nuts not set up, showing that the work was not done in a workmanlike manner. In examining the broken columns we find they were full of sand holes and dirt, and contained very little solid metal. They were not of uniform thickness, varying from  $\frac{3}{4}$  to  $\frac{1}{2}$  in., and we believe manufactured out of the worst possible material.

"In the opinion of your committee the collapse was caused by overloading the floors to such an extent that originally defective columns were unable to resist the strain, thereby driving said center column through said defective foundation. We find on investigation that it is the unanimous opinion of your committee that the ground under concrete bed of center column is composed of loam, and that concrete should have been put in to a greater depth or piles be driven for a foundation of a building of such magnitude."

#### Long Distance Power Transmission at Fresno, Cal.

An interesting long distance power transmission plant is in course of construction at Fresno, Cal. The head of water to be used is 1,410 ft., and the distance of transmission about 35 miles. The natural conditions surrounding the installation are extraordinary. The water for supplying the power is taken from the North Fork of the San Joaquin River, which runs for several miles down a rocky canyon, forming rapids and cataracts between the steep mountains. At the head of the rapids a canal will take the water out upon the summit of a high ridge, which it will follow for six miles to a point nearly 1,500 ft. above the San Joaquin River, where a reservoir has been constructed with an average depth of 10 ft. It covers about eight acres, and can be enlarged should the demand for power require an extension. This reservoir will be used solely as an emergency store, and will hold enough water to drive the machinery for several days, should a break occur between the reservoir and the source of supply.

A pipe line runs directly from the canal a distance of about 4,000 ft., to the power house and the head of water obtained will not be less than 1,410 ft. The pressure at the bottom will be 600 lbs. to the square inch. The lower end of the pipe line is of welded steel,  $\frac{3}{4}$  in. thick, having heavy flanges and special packing at the joints. The lowest amount of power available is 7,000 H. P. Careful provision against accidents has been made. Should a break occur near the lower end of the pipe the rush of water would form a vacuum near the upper portion of the pipe and it might collapse under atmospheric pressure. An air valve will be placed near the top to prevent this. The pipes will be made in sections of 20 ft. each; at the upper end the metal will be  $\frac{1}{2}$  in. thick and the pipe 24 in. in diameter. It will be fastened to the granite mountain sides by steel cables.

The power station will be located at the bottom of the mountain, and will contain three Pelton water wheels, 58 in. diameter, driven by a single nozzle. The generating plant will consist of three 340 K. W. General Electric Company's three phase generators. The three phase system has been selected in this case as that which will give the highest efficiency of transmission with the lowest cost of copper.

From the point in the North Fork of the San Joaquin River, where the water is impounded to the power house at the foot of the mountain, is a distance of about 7 miles. From the power house to Fresno, where the electricity will be utilized, is about 31 $\frac{1}{2}$  miles in a direct line or 35 miles over the electric wires. The line will consist of two circuits of bare copper wire, consisting of six wires strung on poles 40 ft. high. The current will be delivered to the lines at a voltage of 11,000 volts. From the power house the line will rise to the level of the San Joaquin, cross it and pass through a portion of the Auberry Valley, then rising over the Red Mountain, passing about a mile west of Clovis, will continue direct on to Fresno. The first 5 miles will be over moderately level country, the other 30 through an open and practically level country under ideal conditions for transmission. It is estimated that the power which will be delivered in Fresno at present from the generators will not be less than 900 H. P.

At the Fresno end the line will be brought into a substation where the current will be transformed down. From the sub station power will be delivered to all the mills in town, the water-works, machine shops, planing mills, laundries, printing presses, elevators, packing houses, etc. It will also be used to drive the street railway system of the city which will require about 300 H. P. In the sub station, two arc dynamos, each of 60 lamps capacity will be driven by an induction motor, the motor being mounted on the same bed plate as, and being direct connected to, the dynamo. Current will be supplied for 4,400 incandescent lamps.



Gas and fuel in the San Joaquin Valley has always brought a high price and this may be considered as the most potent reason for the present installation. It is believed that power can be supplied when the plant is started, at about half its present cost; and to the towns around Fresno the privileges of electricity will probably be extended as soon as possible.

#### TECHNICAL.

##### Manufacturing and Business.

Mr. George Royal, Sr., has recently been appointed General Western Agent of the Nathan Manufacturing Company, with which he has been connected for almost 18 years. His headquarters will be at 147 Van Buren street, Chicago, where he will keep a large stock of the various appliances made by this company, and will be prepared to promptly fill orders received from railroads in the Western territory.

The United States metallic packing has been specified for the locomotives building at the Brooks Locomotive Works for the Pittsburgh, Akron & Western and the Cleveland, Lorain & Wheeling. Four engines are being built for the former company and six for the latter road.

The Los Angeles Electric Company, Los Angeles, Cal., has recently ordered 3,000 ft. of "Stevedore" transmission rope from the C. W. Hunt Company, New York City, for driving.

The Buckeye coupler manufactured by the Buckeye Malleable Iron & Coupler Co., of Columbus, O., has been specified for the 650 coal cars building for the Cleveland, Lorain & Wheeling road by the Michigan-Peninsular Car Co.

The American Electrical Works, of Providence, R. I., gave a Rhode Island clam dinner to its trade friends at the Union Club Country House, Providence, on Saturday, Aug. 17. The dinner was to commemorate the 25th anniversary of the founding of the works by the President, Mr. Eugene F. Phillips.

At the annual meeting of the stockholders of the Auto-Pneumatic Railway Signal Co. recently held at the company's office at Jersey City, N. J., the following directors were elected: John N. Beckley, George W. Archer, Samuel D. Lee, George Weldon, George Moss, Thomas A. Smyth, J. H. McCartney, W. F. Carlton and B. W. Spencer. All of the directors are Rochester capitalists except General Spencer. The directors have chosen John N. Beckley President, George Weldon Vice-President, T. A. Smyth Secretary, and George Moss Treasurer.

The Chicago, Burlington & Quincy road has asked for bids for 5,000 M. C. B. couplers.

The United States Car Co. reports business as improving very much, and the company is now opening its shops at Anniston, Ala., and will soon have its axle forge and bar mill in operation. The shops at Urbana, O., are full of work, principally repairs.

The Davis Car Shade Co., of Portland, Me., announces that customers buying the company's shades will be fully protected from patent suits. The company has issued a circular containing the decision of the Commissioner of Patents in the interference case concerning patent No. 488,608, together with a copy of a letter which has been sent to a competitor who has threatened to sue the Davis Company for infringement. Parties who have been annoyed by letters from this competitor are informed that although he has persistently kept up his threats of lawsuits, he has never yet actually begun a suit, although formally invited to do so.

##### New Stations and Shops.

The department of Railway and Canals at Ottawa, Ont., are calling for tenders for the erection of offices and workshop of stone in connection with the new Canadian "Soo" canal at Sault Ste. Marie.

The Fitchburg is building a handsome new station of brick with stone trimmings, to cost \$16,000, at Gardner, Mass. It will be finished about Nov. 1.

The Illinois Central is making considerable progress with the plans for the new car shops at Burnside, Chicago. The plant will consist of three building 160 ft. x 330 ft. each, consisting of wood working shop, passenger car repair shops, and passenger paint shop. The company is also building a freight car repair shop 100 ft. x 500 ft. and making an addition to the blacksmith shop of 110 ft. x 250 ft. All of these buildings are to be one story high. It is also proposed to erect an office building 50 ft. x 50 ft. two stories high. The shops will be entirely equipped with new machinery.

##### Block Signaling.

The Chicago & North Western is to use the block system on the Madison division, between Madison and Baraboo, Wis. This section of road, single track, is 36 miles long, and there will be 10 stations. A double-arm semaphore will be erected at each station.

The Hall Signal Co. is to put up its automatic electric block signals on the line of the Southern Railway between Atlanta and the Exposition grounds near that city. This piece of road is double track, and is about 4 miles long.

The Hall Signal Co. is equipping the St. Louis, Keokuk & Northwestern, with automatic block signals. The line to be equipped is from West Market street, St. Louis, northward to West Alton, a distance of 21 miles, double track. The signals will be arranged to stand normally clear, and will be controlled by track circuits.

The wires for the first mile and a half will be carried in boxing set on stakes. The rest of the way they will be strung on poles. There will be 27 blocks in all. All switches are to be provided with switch indicators.

##### The Drafting Room.

One of the large Western railroads has instituted a new departure in the drafting room of the motive power department. The draftsmen employed there are now required to keep their time on each drawing they make and report the same to the proper person. It is said that there has been observed a very appreciable difference in the amount of work done.

##### Car Axles.

Mr. D. H. Lauderback, President of the Lake Street Elevated Railroad, Chicago, in ordering the axles for the new motor car trucks, has increased their diameter at the center from  $4\frac{1}{2}$  in. to 5 in. Also in motor car axles for surface roads, he had the diameter increased from  $3\frac{1}{4}$  in. to  $3\frac{3}{4}$  in. In this case the change was due to the fact that a large number of the axles were sprung at the center, being too light for the service in which they were used.

##### The Richmond Compound Locomotive.

The Richmond Compound which was mentioned in the *Railroad Gazette* of July 12, as having a service test on the Chicago, Rock Island & Pacific Railroad, was sent from there to the Chicago, Milwaukee & St. Paul, where it was given a test. It is now on the Grand Trunk, and after that will go to the Chicago & Northwestern, and thence to the Illinois Central.

##### Pig Iron Production.

The figures given in the *Iron Age* for August 15, concerning the capacity of the various blast furnaces now in blast throughout the country, differ somewhat from those which we reproduced from the *American Manufacturer* last week. The weekly capacity of all furnaces, on August 1, was, according to the *Iron Age*, 180,525 tons, instead of 176,505, as given by the *Manufacturer*. This capacity is not exceeded by any since December, 1892, except by that given for May 1, 1893, which is 181,551 tons. The *Manufacturer* finds the August 1 capacity exceeded five times since December, 1892. The total as given by the *Age* includes 179 coke and anthracite furnaces with a combined capacity of 176,380 tons, and 21 charcoal furnaces with a capacity of 4,145 tons.

##### New East River Bridge.

Counsel for the East River Bridge Commission have given the opinion that there is no law which would prevent C. C. Martin, Engineer and General Superintendent of the New York and Brooklyn Bridge, from serving as Consulting Engineer of the new bridge and receiving compensation therefor. This means, we judge, that Mr. Martin will be appointed Consulting Engineer—a most excellent appointment.

##### A New Coal Storage Plant at Tacoma.

Work has been begun upon the large coal storage and handling plant, which the Northern Pacific will erect at Tacoma, Wash., for loading vessels used in the coal trade. The new bunkers will have a capacity of 14,000 tons, and will be equipped with improved machinery for the rapid loading of vessels. The bunkers will be 400 ft. long, 60 ft. wide and 60 ft. high. Statistics of the Tacoma coal trade show that an average of about 25,000 tons per month is shipped by water from that point. More than 20 mines are worked in the district tributary to Tacoma, their outputs ranging from 150 to 1,800 tons per day. The coal is bituminous, semi-bituminous and lignite.

##### The Porter Compressed Air Mine Locomotive.

We described in our issue of Aug. 9 a compressed air mine locomotive made by H. K. Porter & Co., of Pittsburgh. Through an error in proof reading the size of the cylinders of this engine was given as 17 in. x 14 in. This should have been 7 in. x 14 in. The engine was for use in the mines of the Susquehanna Coal Company.

##### Building a Levee with Force Pumps.

Capt. Geo. McC. Derby, of the United States Engineering Corps, at New Orleans recently showed that levees can be built with force pumps at a cost considerably below the usual methods. The experiment was made on the levee at Nine Mile Point, on the Mississippi, near New Orleans. Here the levee was to be enlarged in section and height. After trying several methods, a plank about a foot wide was placed on edge about 12 ft. from the toe of the old levee, being driven a short way into the turf. The pumps on the dredge "Ram" were then started and the dredged material pumped through a line of piping to the levee and deposited between it and the plank. When this space was filled with solid material to within 4 in. of the top of the plank, another plank was placed on the terrace thus formed several feet nearer the old levee. This was repeated until the desired fill was secured. It is said that this process has reduced the price of levee work from 10 cents or more per cubic yard to 3.9 cents.

#### THE SCRAP HEAP.

##### Notes.

Tramps held up a freight train near Tiffin, O., Aug. 13, and a passenger was injured by a bullet wound. At Edgemoor, Del., on the same night, a freight train crew had a hard fight with a gang of 30 tramps.

President C. L. Rossiter, of the Brooklyn Heights (Street) Railroad, Brooklyn, N. Y., has issued an order

permitting conductors and motormen to ride free on all the lines of the company when in uniform.

It is said that the Canadian Pacific landed 2,900 male and female harvest hands and cooks in Winnipeg last Friday. About 3,000 more men will be landed there this week. A round trip rate of \$18 was made from eastern Ontario. Manitoba expects a crop of 60,000,000 bu. of grain.

Train No. 506 of the Philadelphia & Reading ran from Philadelphia to Bound Brook on the night of Aug. 18 in 48 minutes, the distance being 49.4 miles. Making the calculation by these figures alone the speed will be seen to be the merest boy's play for Reading locomotives; but it is further stated that the run included five stops, one of which took four minutes. The engine was No. 511.

At Pachuca, Mex., on Sunday last, a boy was put to death for placing stones on the track of the Hidalgo Railroad. It was a second offense and a train was derailed. The execution was under the law recently passed suspending certain constitutional rights in the case of persons obstructing railroad trains. The boy's father became frantic and committed suicide by throwing himself in front of a locomotive.

Near Mahaffey, Pa., Aug. 16, six men were killed and a number injured by an explosion following a blast which was made on the afternoon of that day in the course of the work on the construction of the Pittsburgh & Eastern Railroad. It is said that the blast dislodged so large a mass of rock as to make an opening into an abandoned coal mine and that the fatal explosion was due to the ignition by the electric blast of accumulated gases which escaped from the mine.

On Aug. 9 a passenger train of the Chicago, Fort Madison & Des Moines was detained an hour by a swarm of hornets which attacked the engineer and firemen as the train was moving slowly on an ascending grade. The car windows were open and many passengers were stung. Near Coney Island, N. Y., passenger trains have been stalled by potato bugs. It appears that the engines on the Sea Beach Railroad carry a fair supply of sand, but the bugs are so numerous that one box full is not sufficient for a whole trip. One train was delayed half an hour while men went back to the beach to get a supply of the sand which is there.

The newspapers have a story about the detection of a United States naval officer in an attempt to make fraudulent use of a pass over the Atchison, Topeka & Santa Fe. The officer and his wife rode to California on the pass, but only the wife was to make the return trip. In order not to have the valuable pasteboard wasted, a bargain was made with a scalper, who engaged a Hebrew drummer to personate the officer on the return trip, the consideration being that the drummer should pay for the woman's berths and meals, say \$25. According to the accounts the fraud was detected at Mojave, and the two passengers had to pawn a good deal of jewelry and other property in order to get through to Chicago.

##### The Distant Signal.

"What's the matter with a Distant Switch Signal?" asked the Crank one day.

"Nothing at all that I know of," responded the Semaphore, "unless you try to make it do too many things. I heard of a case where they put a red signal out about 1,500 ft. from a switch and then issued an order telling the men that they must look out for trains ahead when they passed that signal in the danger position. They already had a rule that trains must not pass a signal in the danger position, so it wasn't surprising that the boys got a little mixed on just what the signal did mean. One of them said it reminded him of the man who had three children. All the children had black hair except one, whose hair was red, and another that had no hair at all; the third child did not have exactly black hair, but kind of dark brown.

"But a distant switch signal is a mighty good thing if you use it as a distant signal and put it far enough away so that the engineer can stop if he finds the signal at caution.

"Once, on the 'Peanut Branch,' there was a switch connected with a siding that went over to a lime kiln it was right in the middle of a long curve on a heavy down grade for northbound trains, and a pretty tough place to stop if they were going fast.

"The switch wasn't used very often, a couple of cars a week, perhaps, so nobody paid much attention to it. Well, one morning the way freight left an empty gondola on the lime kiln track, and while they were making the kick the brakeman had to go to the caboose for a link or something. Of course he had his switch key chained to him, and of course, he had to take it out of the lock when he went away. Then he threw the switch for the main track, forgot to lock it, coupled up his train and skipped out. Not long after some boys came along and began playing with the switch; while the boys were there the local passenger showed up not 200 ft. away, gave a whistle like the crack of doom, scared the hearts right out of the boys, took the switch and knocked the gondola into slivers. The fireman jumped and they hauled him out piecemeal from under the baggage car, where it had turned over. The engineman stayed, though, and was only parboiled. He got well, but didn't look any too pretty the rest of his life. And what do you think was the result? The old man when he made his report said that he had discharged the whole train crew because he was unable to find out exactly who was responsible, but he 'pointed with pride' to the fact that he had always reported this as a dangerous place. That's what it is to be conservative, yes!"

##### 60-ft. Rails.

The Columbus, Hocking Valley & Toledo finished laying a section of five miles of 60-ft. rails last week. This makes a total of 15 miles laid with the 60-ft. rails, which are giving entire satisfaction. This company was the first in the state to make a practical test of these rails, the first order having been laid two years ago. The Cambria Iron Company, of Johnstown, Pa., furnishes the rails.



**A Drawbridge Accident.**

An accident occurred at the rolling lift bridge of the Metropolitan Elevated, near Van Buren street, on Aug. 18, by which a three-masted schooner, loaded with lumber, being towed up the river, lost her three masts. The tug towing the schooner blew for the bridge to open, and the signals were given to proceed, but the bridge machinery failed to respond and the bridge could not be opened. The ship's masts were broken off flush with the deck, but no one was injured and no damage was done to the bridge. The failure of the bridge to open, it is said, was due to the fact that the electric current had been shut off while some repairs were being made, and it had not been turned on again.

**A French Round-Trip Ticket.**

The Western Railroad of France issues a round-trip ticket through the beautiful province of Bretagne. It is good for 30 days. Besides the starting and terminal points, which are identical, there are 21 stop-off places named on the ticket. An extension of time of three times ten days may be had for an additional payment of 10 per cent. on the original cost of the ticket for each extension. People intending to make the round trip, but not living at points along its route, may obtain excursion tickets between their nearest railroad station and the nearest point on the round-trip route at 40 per cent. below regular rates if they have to travel at least 150 kilometers (about 94 miles) to reach the round-trip route. Applications for both the round trip and the excursion tickets must be made four days in advance and on the same blank.

**The Toronto Union Station.**

The new Union Station at Toronto will probably be finished early this fall. The approaches are in course of construction and will add much to the appearance of the building. The York street bridge connected with the station, which is to span the tracks between Station and Esplanade streets, has not yet been commenced, and there is no certainty as to when it will be. Its erection rests with the Canadian Pacific Company. The final span of the bridge at John street remains still incomplete, as it was two months ago. The first two spans, covering the Grand Trunk tracks, have already been built, but there is an unsettled dispute between the two companies as to the final span which will cover the Canadian Pacific Railroad tracks. The city has, in the mean time, erected a stairway from the bridge to the ground for the convenience of access to the water-works. The Canadian Pacific Railroad's new freight shed on the water front, west of Simeve street, is being rushed ahead, and the filling in of the water front south of the Union Station proceeds.

**Discipline and Improved Service on Street Railroads.**

A street railroad president in St. Louis says: "The general introduction of electricity has brought the officers and men of the street roads into closer relation. It takes a higher order of intelligence to manage a trolley than it does to drive a mule. We have regular schools of instruction now which the men must attend, and this has brought the best of them forward. Ability is quickly detected by the questions asked and the interest taken, and wherever ability is found it is marked for promotion. The school of instruction is steadily reducing the percentage of accidents, and we expect to get this average below the old average on horse-car lines. Drink has been absolutely prohibited among employees, and the well-remembered mulewhacker, whose capacity for whiskey was only exceeded by his versatility in profanity, is of the past. He has been weeded out."

St. Louis is proud of its excellence in the street-car line. The town has a street-car ambulance fitted up elaborately, so that in case of emergency surgical operations can be performed in it. It has the original trolley mail-car with several additions, and a regular express system, with cars especially designed, reaching from one end of the town to the other. A bill is being drawn permitting the car lines to carry freight at certain hours.—*New York Evening Post.*

**The Transatlantic Cables.**

The transatlantic cable business is really controlled by two companies, the Anglo-American Telegraph Company and the Commercial Cable Company, the first controlling nine and the second three cables. The Commercial Cable Company entered the field as a rival to the then existing combination, and rates went down from one shilling and eightpence to sixpence a word, attended by an increase of business equal to 727 per cent. But Sir John Pender, the brain of cable enterprise all over the world, succeeded in inducing the Commercial Company to join with his companies in fixing the minimum rates for business messages at a shilling a word. The rate does not yield the companies any great profit, but that is because the companies have to carry an enormous weight of dead property. There were 23,000,000 words sent over the cables between England and the United States last year, but the new cable of the Anglo-American, having a weight of 400 lbs. of copper to the mile, could carry all the existing traffic. The bulk of the existing business is done over two cables, the other ten being but little employed. Three cables have been entirely abandoned. The total capital invested is \$60,000,000, but two cables could do all the work and these could be supplied at an outlay of \$5,000,000. The total annual income from the existing Anglo-American cables may be put down at the same amount, but the service for which the public pays \$5,000,000 a year could obviously be duplicated at a fraction of that cost. It is plain that if two cables costing five millions did a business of 25,000,000 words a year at five cents a word, there would be a gross revenue of \$1,250,000, leaving a handsome margin of profit after deducting interest and working expenses.—*Journal of Commerce* (New York).

**Crops and Stock Prices.**

Rhodes' *Journal of Banking*, speaking of the effect of the promise of a great corn crop upon the earnings of the railroads, says that "there are 50,000 miles of railroads in the half dozen leading corn States, the effect on which of a large crop is not to be overestimated. Since the first of June, Burlington & Quincy has advanced 12 per cent., Milwaukee & St. Paul 6 per cent., Northwestern 5 per cent. and Rock Island 1½ per cent."

**Railroad with both Steam and Electric Locomotives.**

The Wellston & Jackson Belt Railway Company has been incorporated in Ohio to build a railroad which is to be operated by both steam and electricity. The incorporators are Messrs. A. D. Lutz and C. L. Currier, of Chicago; Harvey Wells, J. C. Clutts and F. H. Alfred, of Wellston, O. The road is to start at McArthur Junction, the junction of the Columbus, Hocking Valley & Toledo with the Baltimore & Ohio Southwestern, and to extend to Wellston, thence by way of Glen Roy and Coalton to Jackson, O., a total distance of 18 miles. This is in the heart of the Hocking coal-

field, and the line is to be operated in connection with the Columbus, Hocking Valley & Toledo. The entire line will be standard gage, substantially built and operated as a steam road, and, in addition, that portion from Wellston to Jackson, a distance of 10 miles, is to be equipped with electricity, the overhead trolley system being used. The cars are to be similar to the usual street railway car, except they will be heavier and more strongly built, and with drawbars of the standard height of a railroad car. The object of the electrical equipment is for passenger traffic alone. The line passes through a densely populated mining district, and the chief purpose of the 10 miles to be equipped electrically is to carry the miners back and forth to their work. The freight traffic will be hauled by steam over the entire line. That portion over which the electric cars are to run is to have a maximum grade of one per cent., and the plant is to be able to furnish a maximum speed of 35 miles an hour.

The electrical plant which will be at Wellston and will be arranged to use slack for fuel, and is to be so situated near the entry of a mine that the dump cars will run direct from the mine into the furnace room of the plant. The construction is in charge of Chief Engineer Sheldon, of the C., H. V. & T. The total cost is to be \$300,000, which includes the equipment. Mr. John M. Lally, of Detroit, Mich., has the contract for grading, to be completed by Oct. 10. The company has organized with Mr. A. D. Lutz, of Chicago, as President, and it is the intention to have the road in operation before cold weather.

**Damage Suits at Youngstown.**

The report of the Clerk of Courts for Mahoning County, Ohio, for the year ending July 31, shows a total amount of judgments about \$40,000 less than the year previous. A few verdicts were in favor of railroad companies, and it would appear that the tide is turning. This county, which has long been famous as a Mecca for railroad damage cases, may be in a fair way to lose its prestige in this line, which has been gained at a terrible cost to Mahoning County taxpayers. Several times conscientious county commissioners have made a show of obtaining legislation to put a stop to this wholesale bleeding of their constituents, but they never got very far. As soon as their efforts came to where they attracted the attention of the bar they were promptly and effectively choked off.

About 50 per cent. of the actions brought against railroads are by citizens of Pennsylvania and for injuries received within that state. About 95 per cent. of the total number of cases are for injuries received outside Mahoning County. A large percentage of these cases are brought against the Pennsylvania Company. The company's attorney, W. C. Boyle, of Salem, says the large verdicts in this county encourage Pennsylvanians to bring their litigations here. During 1894 there were 281 suits for damages begun against the Pennsylvania in this county and in no single instance were the injuries received in this county. Of these 14 were received in the state of Pennsylvania. The case of Alfred Byrne, who lost an arm at the Adderson street crossing of the Pennsylvania, in Allegheny, Pa., was tried three times, and it cost this county nearly \$700. Cases like these cost the county during the year 1893 over \$18,000.—*Exchange.*

**LOCOMOTIVE BUILDING.**

The Brooks Locomotive Works are building 10 locomotives for the Burlington, Cedar Rapids & Northern road.

The Baldwin Locomotive Works is building several engines for the Paulista Railroad in South America and has small orders for the Cincinnati, New Orleans & Texas Pacific and the York Southern in Pennsylvania.

The first of the lot of 12 locomotives ordered by the Chicago & Northwestern Railroad from the Schenectady Locomotive Works has been delivered, and was tested at the West Chicago shops on Wednesday, July 14. These engines are to be put in the fast mail service between Chicago and Council Bluffs. The engine ordered by the Chicago, Burlington & Quincy from the Baldwin Locomotive Works to compete with the Chicago & Northwestern will be delivered on September 8.

The Illinois Central has issued specifications for 50 locomotives.

These locomotives will consist of 34 freight, 12 switch and four suburban. The freight engines will be 19 in. x 26 in. moguls, Belpaire boilers, weighing 126,000 lbs., with 106,400 lbs. on the drivers and 19,000 lbs. on trucks. The drivers are to be 56½ in. in diameter, the tank of 3,850 gallons capacity, and carrying 7½ tons of coal. The switchers to have 18 in. x 24 in. cylinders. They will be six wheeled engines, weighing 84,000 lbs., with drivers 51 in. in diameter, having wagon top crown bar boiler, sloping back tank of 25,000 gals. capacity, and carrying 5½ tons of coal.

The suburban engines will be four-wheeled, connected with two-wheeled front leading truck and six-wheeled rear truck. The boiler, straight top radial stay type, drivers 56½ in. in diameter. American balance slide valves, Smith triple exhaust, Monitor injectors, Nathan lubricator and Krupp tires are specified on the above engines.

**CAR BUILDING.**

The Canadian Pacific officials state that a large number of cars will be added to the company's rolling stock to handle the grain crop of the Canadian northwest.

The Haskell & Barker Car Company, at Michigan City, Ind., has given notice of an advance of 10 per cent. in wages. The advance dates from July 1 and applies to about 1,000 men.

The Calumet & Blue Island road has just ordered of the United States Car Co. 200 34-ft., 60,000-lb. box cars. They are to be equipped with the Fox pressed steel trucks, Tower couplers and Westinghouse air-brakes. These cars were referred to in the *Railroad Gazette* of July 23.

The Southern Railway has received within a few weeks six handsome vestibuled day cars from the Pullman Palace Car Co., which are to be run on the vestibuled limited trains between Washington and Atlanta. These trains now carry only dining and sleeping cars, besides baggage and mail cars, but hereafter each train will have a day coach.

**BRIDGE BUILDING.**

Brockville, Ont.—It is said that the bridge between Brockville and Morrisstown is to be constructed at once. Engineers Smellie and Howland have been excavating in the Canada shore for anchor piers for the cantilevers.

Cincinnati, O.—The county commissioners last week opened the bids for the new Spring Grove avenue bridge over Mill Creek. The Brackett Bridge Co. bid on the superstructure work on three different plans: \$35,050, \$29,588 and \$26,000. The other bidders were King Bridge Co., \$37,010 for asphalt paving, and \$37,000 for brick paving; Keepers, Wyntrop & Thacher, \$37,000; Youngstown Bridge Co., \$46,000; Massillon Bridge Co., \$37,200; Variety Iron Works, \$39,000 for asphalt paving, and \$38,000 for brick paving; Wrought Iron Bridge Co., \$41,000 for asphalt paving, and \$42,000 for brick paving. Wisconsin Bridge & Iron Co., two plans, \$38,200 and \$40,000. For the excavation for approaches, etc., T. Malony was the lowest bidder at 23 cents per cubic yard; for the masonry, E. Bowman at \$4.50 per cubic yard; concrete work, Kirchner & Folz, 50 cents per cubic yard. For the excavations for foundations Delaney & Dawson bid the lowest, at 15 cents per cubic yard; for masonry John McDonell, \$4.75 per cubic yard; for broken stone, Delaney & Dawson, at \$2.25 per cubic yard; for gravel, Ruebel Bros., at \$12 per cubic yard; for drain pipe, Ruebel Bros., at \$12 per lineal foot. The bids were all referred to the county engineer for computation.

Greenswood, Man.—It is proposed to build a bridge across the Assiniboine River, near Greenswood, Man.

London, Ont.—The London Street Railway Co. has awarded the contract for the construction of a bridge at York street to the Central Bridge and Engineering Company. The work is to be completed Sept. 14.

Mattawa, Ont.—The Canadian Pacific is now building a bridge 2,200 ft. long, at Mattawa, to connect its main line with the branch line running up to the head of Lake Temiscamingue.

Meaford, Ont.—The town council has decided to build a bridge over the Big Head River at Moore's mill. The contract for the bridge, which is to be of steel, was secured by Hunter Bros., Kincardine, for about \$1,000.

New York City.—The New York Central & Hudson River road is to build three new overhead bridges on the New York & Harlem road, in New York City. These bridges will be erected at 187th street, at Samuel street and at Scott avenue, between Fordham and Morrisania stations. Plans for the structures have not yet been completed.

Ottawa.—The Government Engineer is making plans for the construction of a traffic bridge at Marion street. In 1891 plans were drawn up for replacing this bridge, the estimated cost being \$30,000. The bridge will now, in addition to spanning the canal, pass over the tracks of the Canada Atlantic, which are being extended into the city.

Parkersburg, W. Va.—A company has been organized at Parkersburg to build a foot bridge across the Kanawha River to cost between \$10,000 and \$15,000. The incorporators are W. Bentley, Wm. Kirk, A. B. Chancellor, J. Henry Fischer and D. Lemley.

Pittsburgh.—Both branches of the city councils has finally passed an ordinance providing for the city taking over the three toll bridges across the Monongahela River as soon as the city has filed bonds to indemnify the bridge companies against possible damages. These bridges will probably be made free within a month. The step is the outcome of an agitation begun many years ago by the people of the South Side. There are no free bridges at Pittsburgh at present, all the river spans being owned by private corporations. The city is building one free bridge across the Monongahela River.

Revelstoke, B. C.—A new railroad bridge is to be built across the Columbia River at Revelstoke, B. C., during the fall.

Rock Island, Ill.—The Phoenix Bridge Co. has secured the contract for furnishing the new bridge for the United States Government over the Mississippi River, at Rock Island, Ill. This bridge consists of the following spans: One draw span, 365 ft. 7 in.; two fixed spans, 258 ft.; three fixed spans, 216 ft. 6¾ in.; one fixed span, 193 ft. 3 in.; and one fixed span 93 ft. 9 in. This bridge is designed to carry a double track railroad on the upper deck, with a double roadway and two side-walks below. The total weight of the metal will be about 11,000,000 lbs., and the cost will be about \$500,000. This new structure replaces the original bridge built by the Phoenixville Bridge Works in 1871, and is to be completed within the next nine months. The bridge will be used by the Chicago, Rock Island & Pacific, and that company is to share half of the expense of construction with the United States Government.

Stanley, N. B.—The bridge over the Nashwoaka has fallen down, and a new bridge will be necessary to replace the old wooden structure.

St. John, N. B.—The contract for the construction of a bridge over Newman's Brook, near St. John, N. B., has been let to Wm. Lewis & Son for \$2,885, and \$10 per cu. yd. for masonry. The bridge must be completed by Nov. 1.

The St. John City Council has resolved to build a new bridge at a cost not exceeding \$4,500.

**RAILROAD LAW—NOTES OF DECISIONS.****Powers, Liabilities and Regulation of Railroads.**

In Texas it is held that where the lessor railroad constructs its bridges of sufficient height to permit the operation of ordinary cars through them, but the lessee company receives into its train a car of unusual height, failing to give notice thereof to its employees, and one of them is killed on that account, the lessor is not liable.

In Maryland it is held that the fact that a railroad permitted an engine to be run on its tracks by a contractor in performing his contract with third parties does not render it liable for an injury occurring through his negligent operation of such engine.

In New York the right of one railroad to intersect the track of another is not subject to the objection that it is taking land already dedicated to a public use.

In the Federal Court it is laid down that a Receiver appointed in a suit to foreclose a railroad mortgage, containing a provision that the mortgagor shall remain in possession until default, has no right to moneys earned by the railroad company prior to the filing of the bill, though not paid till after the Receiver was appointed.

An Illinois statute provides that all railroad corporations shall construct highway crossings and the approaches thereto within their rights of way so as to be safe to person and property. The Supreme Court holds that this does not require railroad companies in all cases to maintain as approaches to the crossing all of that portion of the street which is within the limits of the



railroad right of way, but only so much thereof as is reasonable.<sup>8</sup>

#### Carriers of Goods and Injuries to Property.

In Texas it is held that a stipulation in a contract for the transportation of cattle, that the shipper would furnish to each conductor in whose charge the cattle might be placed a statement of their condition, and that a failure to furnish such report to the conductors should be conclusive evidence that the cattle were in good condition, is unreasonable.<sup>9</sup>

In New York the Supreme Court rules that under the Code provision making it an offense for a carrier to deliver merchandise for which a bill of lading has been issued unless it bears on its face the words "Not negotiable," or unless it is surrendered at the time of the delivery, delivery of goods without surrender of the bill of lading is unlawful where the words "Not negotiable" do not appear on its face, though such words are printed on the back.<sup>10</sup>

The Supreme Court of Mississippi rules that a cattle guard, within the meaning of the statute, must extend the whole width of the right of way, unless the adjoining owner has waived such obligation on the railroad's part by contracting to maintain fences up to such guard.<sup>11</sup>

In Texas, in an action for damage to cotton by fire, the evidence showed that the cotton was placed upon the platform of a compress company near the track of defendant; that defendant had placed several other bales of cotton on the same platform, near that of defendant, and all the cotton was uncovered; that the cotton placed there by defendant first took fire from a spark thrown from an engine of defendant, either by reason of a defective spark arrester or the careless operation of the engine, and that the fire so started afterwards consumed plaintiff's cotton. The Supreme Court holds that a finding that the fire was caused by the negligence of defendant, and that there was no negligence on the part of plaintiff, was proper.<sup>12</sup>

In Tennessee it is held that a railroad is not relieved from liability for failure to fence its tracks simply because they are within the corporate limits of a town, where it is not shown that they are intersected by highways or streets actually opened or dedicated to public use.<sup>13</sup>

#### Injuries to Passengers, Employees and Strangers.

The Supreme Court of Texas rules that where a passenger presents to a conductor a round-trip ticket, which by its terms expired more than 24 hours previous thereto, and is ejected for failure to pay fare, he cannot, in an action against the railroad company for damages, show that it was agreed between him and the defendant's agent, when he purchased the ticket, that if, on the return trip, he boarded one of defendant's trains at a distant city, before the ticket expired, the ticket would be good to the station where it was purchased.<sup>14</sup>

In Missouri it is no defense to an action against a railroad company for injuries received by an intending passenger on its station platform, used as a passenger platform, that the platform was not originally intended by defendant to be used for passenger purposes.<sup>15</sup>

In Arkansas it appeared that plaintiff alighted from defendant's train at one of its regular stations, the train having stopped in front of the depot on the middle one of three tracks, and that the passage to and through the depot was obstructed for the time being by a freight standing on the inside track, which also prevented any light from the depot reaching the space between the two trains. Plaintiff, who was anxious to reach the town, hastened to go around the freight train, and through a cattle gap in the fence along defendant's tracks, the situation of which he knew, and, catching his foot in a stock guard there located, fell and sprained his ankle. The Supreme Court holds that plaintiff's recovery was precluded by contributory negligence.<sup>16</sup>

In New Hampshire it is held that where a baggage master was removing baggage from a car in the ordinary manner, plaintiff, who tripped over his feet, when there were 10 ft. of the platform unobstructed, cannot recover damages.<sup>17</sup>

It is held in Texas that where a railroad makes a contract to transport live stock over its own and a connecting line, by the terms of which its liability for damage to the stock is limited to its own line, and at the same time, as incident to such contract, issues to the shipper a drover's pass to and from the point of destination of such stock, the liability of the contracting company for wrongs to the shipper as a passenger is not limited to its own line, in the absence of an express limitation to that effect.<sup>18</sup>

In New York it is laid down that it is a part of the duty of a street-car driver to keep trespassers off his car, and therefore, where he compels a boy who had entered it, to sell a paper to a passenger, to jump off while the car was in rapid motion, such act, though wanton and reckless, is within the scope of his employment.<sup>19</sup>

The mere fact that an employee occasionally had authority to require other employees to help him does not render him a vice principal at such times, though they were then under his orders.<sup>20</sup>

The Supreme Court of Missouri holds that railroad switchmen who, in violation of a rule of the company, habitually board moving switch engines from the middle of the track by stepping on the footboard of the engine as it approaches, assume the risks ordinarily incident thereto, but do not assume the danger of injury from incompetency of the engineer.<sup>21</sup>

In Massachusetts the Supreme Court rules that an employee of a railroad company who is familiar with their premises, and who, in going from the freight house to a pier, uses a narrow passage between the track and a platform, when there was a safer though a longer way, and the narrow passage, though sometimes used as defendant was using it, was not designed to be used for the purposes of travel, is guilty of negligence.<sup>22</sup>

In Indiana the fact that a brakeman, before stepping between cars to couple them, could have discovered the unsafe condition of the track if he had looked, does not, as a matter of law, render him guilty of negligence.<sup>23</sup>

In Missouri it is held that where a railroad knew that a car was defective, and so marked it, and ordered it to be taken out of a train and put on the repair track, but its servants, in violation of such order, placed it in a train, without any danger mark on it, their negligence is that of the company, in respect to its duty to furnish safe appliances, and not the negligence of fellow servants of another employee, who is injured by such defects.<sup>24</sup>

In Michigan where a youth of 18 was detected stealing a ride on defendant's passenger train, by the conductor, who said that he would take him to a station and turn him over to an officer, and he jumped from the train and was killed, it is held that the statement of the conductor could not be said to have been the proximate cause of the injury and the Court was right in directing verdict for the defendant.<sup>25</sup>

In Texas, the fact that a person is driving a team which might become frightened by the sudden approach of a train does not render him guilty of contributory negli-

gence, so as to prevent his recovery for injuries received by reason of such team becoming frightened by a train approaching a crossing without giving the statutory signals.<sup>26</sup>

In Massachusetts, it is said that where a crossing is exceptionally dangerous, owing to the fact that the highway is shut off from a view of the tracks, and the highway is much used, the jury may find the railroad company negligent in not providing a gate and a flagman.<sup>27</sup>

In Wisconsin a person, 16 years old, who stands on the track with his back towards an engine 20 ft. away, is guilty of contributory negligence which relieves defendant of liability, though the fireman did not exercise ordinary care.<sup>28</sup>

In New York the Court of Appeals holds that a railroad which maintains on its land a properly constructed turntable is not liable for injuries to a boy caught in the table while he was playing about it with other boys, on the ground that as to children it was dangerous, and should either have been guarded to prevent their approach, or some device should have been used to prevent its turning while not in use.<sup>29</sup>

In Texas it is said that the fact that a young boy may have a trespasser at the stock pens of a railroad will not relieve it of the duty of ordinary care to prevent injury to him, and the company is liable where his foot is injured by the negligence of its employees failing to move a gangplank far enough back to prevent a car from striking it.<sup>30</sup>

In Georgia the negligence of the driver of a vehicle which contributes to a collision with a locomotive is not imputable to another person riding in the vehicle, unless that person had some right to control or influence the driver's conduct.<sup>31</sup>

- <sup>1</sup> T. & P. v. Moore, 27 S. W. Rep., 962.
- <sup>2</sup> City & Suburban v. Moores, 30 Atl. Rep., 643.
- <sup>3</sup> Hornellsville Electric Ry. v. N. Y., L. E. & W., 31 N. Y. S., 745.
- <sup>4</sup> Hook v. Bosworth, 64 Fed. Rep., 413.
- <sup>5</sup> Bloomington v. Ill. Cent., 39 N. E. Rep., 478.
- <sup>6</sup> M. & T. v. Carter, 28 S. W. Rep., 565.
- <sup>7</sup> First Nat. Bank v. N. Y. C. & H. R., 32 N. Y. S., 604.
- <sup>8</sup> K. C. M. & B. v. Spencer, 17 South Rep., 168.
- <sup>9</sup> T. & P. Ry. Co. v. Levine, 29 S. W. Rep., 514.
- <sup>10</sup> Hughes v. N. C. & St. L., 29 S. W. Rep., 723.
- <sup>11</sup> G. C. & S. F. v. Daniels, 29 S. W., 426.
- <sup>12</sup> Waller v. Missouri, K. & T., 1 Mo. App. Rep'r, 56.
- <sup>13</sup> St. Louis, I. M. & S. v. Cox, 29 S. W. Rep., 38.
- <sup>14</sup> Connor v. C. & M., 30 Atl. Rep., 1121.
- <sup>15</sup> G. C. & S. F. v. Cole, 28 S. W. Rep., 391.
- <sup>16</sup> Baber v. B. & S. A., 30 N. Y. S. Rep., 361.
- <sup>17</sup> Hathaway v. Ill. Cent., 60 N. W. Rep., 631.
- <sup>18</sup> Francis v. K. C. St. J. & C. B., 28 S. W. Rep., 812.
- <sup>19</sup> Galvin v. Old Colony, 39 N. E. Rep., 136.
- <sup>20</sup> C. O. C. & St. L. v. Sloan, 39 N. E. Rep., 174.
- <sup>21</sup> Rodney v. St. L. S. W., 28 S. W. Rep., 887.
- <sup>22</sup> Burden v. L. S. & M. S., 62 N. W. Rep., 173.
- <sup>23</sup> M. K. & T. v. Thomas, 28 S. W. Rep., 139.
- <sup>24</sup> Hubbard v. B. & A., 38 N. E. Rep., 306.
- <sup>25</sup> Lofdahl v. M. St. P. & S. M., 60 N. W. Rep., 795.
- <sup>26</sup> Walsh v. Ech R. Co., 39 N. E. Rep., 1068.
- <sup>27</sup> G. C. & S. F. v. Cunningham, 30 S. W., Rep., 367.
- <sup>28</sup> Roach v. West. & A., 21 S. E. Rep., 67.

#### MEETINGS AND ANNOUNCEMENTS.

##### Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

- Chicago, Burlington & Quincy, \$1 per share, payable Sept. 16.
- Fort Wayne & Jackson, semi-annual, 2½ per cent., payable Sept. 1.
- North Carolina, 3 per cent., payable Sept. 1.
- North Pennsylvania, quarterly, 2 per cent., payable Aug. 26.

##### Stockholders' Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

- Chicago, Milwaukee & St. Paul, annual, Milwaukee, Wis., Sept. 21.
- Iowa Central, annual, Sept. 6.
- Lo-Isle, New Albany & Chicago, annual, Sept. 18.
- Malone & St. Lawrence, special, New York, N. Y., Sept. 12.
- New York, Susquehanna & Western, annual, Taylor's Hotel, Jersey City, N. J., Sept. 5.
- St. Lawrence & Adirondack, special general, Montreal, Sept. 13.
- Toledo & Ohio Central, annual, Toledo, O., Sept. 2.
- Wabash, annual, St. Louis, Mo., Sept. 10.

##### Technical Meetings.

Meetings and conventions of railroad associations and technical societies will be held as follows:

- The Master Car & Locomotive Painters' Association will hold its next annual meeting at the Grand Hotel, Cincinnati, Sept. 11, 12 and 13. The programme of this meeting was published in the Railroad Gazette of Aug. 9.
- The New England Roadmasters' Association will hold its annual meeting at the Revere House, Boston, on Sept. 18 and 19. The programme was published in the Railroad Gazette of Aug. 9.

The Association of American Locomotive Traveling Engineers will hold its annual convention at the Seventh Avenue Hotel, Pittsburgh, beginning Sept. 10, and lasting till the 14th. C. B. Conger, of Grand Rapids, Mich., is President of the organization, and W. O. Thompson, of Elkhart, Ind., Secretary and Treasurer.

The Society for the Promotion of Engineering Education will hold its second annual meeting at Springfield, Mass., Sept. 2, 3 and 4.

The International Railroad Conference of Young Men's Christian Association is to be held at Clifton Forge, Va., Sept. 13, 14 and 15. Mr. C. J. Hicks, 40 East Twenty-third street, New York City, is Secretary of the Railroad Department of the International Committee. The programme was published in the Railroad Gazette of Aug. 9.

The Roadmaster's Association of America will hold its annual meeting at St. Louis, Mo., Oct. 15, 16 and 17. The American International Association of Railroad Superintendents of Bridges and Buildings will hold its annual meeting at New Orleans, La., Oct. 15.

The American Street Railway Association will hold its annual meeting at the Windsor Hotel, Montreal, Oct. 15 to 18.

The National Railroad Master Blacksmiths' Association will hold its annual meeting at Cleveland, O., beginning on Sept. 3, 1895. The programme was published in the Railroad Gazette of Aug. 16.

The American Railway Association will hold its fall meeting at New York City, Oct. 16.

The American Association of General Baggage and Ticket Agents will hold its semi-annual meeting at Boston, Sept. 17.

The Engineers' and Architects' Association of Southern California meets each third Wednesday of the month in the Hall of the Chamber of Commerce, Los Angeles, Cal.

The Engineers' Society of Western New York holds regular meetings the first Monday in each month, except in the months of July and August, at the Buffalo Library Building.

The Western Railway Club meets in Chicago on the third Tuesday of each month, at 2 p. m.

The New York Railroad Club meets at the rooms of the American Society of Mechanical Engineers, 12 West Thirty-first street, New York City, on the third Thursday in each month, at 8 p. m.

The New England Railroad Club meets at Westeyan Hall, Bromfield street, Boston, Mass., on the second Wednesday of each month.

The Central Railway Club meets at the Hotel Iroquois, Buffalo, N. Y., on the second Friday of January, March, May, September and November, at 2 p. m.

The Southern and Southwestern Railway Club meets at the Kimball House, Atlanta, Ga., on the third Thursday in January, April, August and November.

The Northwestern Railroad Club meets at the Ryan Hotel, St. Paul, on the second Tuesday of each month, at 8 p. m.

The Northwestern Track and Bridge Association meets at the St. Paul Union Station on the Friday following the second Wednesday of March, June, September and December, at 2.30 p. m.

The American Society of Civil Engineers meets at the House of the Society, 137 East Twenty-third street New York, on the first and third Wednesdays in each month at 8 p. m.

The Western Society of Engineers meets on the first Tuesday in each month, at 8 p. m. The headquarters of the society are at 1736-1739 Monadnock Block, Chicago. The business meetings are held on the first Wednesday at its rooms. The meetings for the reading and discussion of papers are held on the third Wednesday at the Armour Institute, Thirty-third street and Armour avenue.

The Engineers' Club of Philadelphia meets at the House of the Club, 1122 Girard street, Philadelphia, on the first and third Saturdays of each month, at 8 p. m.

The Boston Society of Civil Engineers meets at Westeyan Hall, 36 Bromfield street, Boston, on the third Wednesday in each month, at 7.30 p. m.

The Engineers' Club of St. Louis meets in the Missouri Historical Society Building, corner Sixteenth street and Lucas place, St. Louis, on the first and third Wednesdays in each month.

The Engineering Association of the South meets on the second Thursday in each month, at 8 p. m. The Association headquarters are at The Cumberland Publishing House, Nashville, Tenn.

The Engineers' Society of Western Pennsylvania meets in the Carnegie Library Building, Allegheny, Pa., on the third Tuesday in each month, at 7.30 p. m.

The Technical Society of the Pacific Coast meets at its rooms in the Academy of Sciences Building, 819 Market street, San Francisco, Cal., on the first Friday in each month, at 8 p. m.

The Association of Engineers of Virginia holds informal meetings on the third Wednesday of each month, from September to May, inclusive, at 710 Terry Building, Roanoke, at 8 p. m.

The Denver Society of Civil Engineers meets at 36 Jacobson Block, Denver, Col., on the second and fourth Tuesdays of each month except during July, August and December, when they are held on the second Tuesday only.

The Montana Society of Civil Engineers meets at Helena, Mont., on the third Saturday in each month, at 7.30 p. m.

The Engineers' Club of Minneapolis meets in the Public Library Building, Minneapolis, Minn., on the first Thursday in each month.

The Canadian Society of Civil Engineers meets at its rooms, 112 Mansfield street, Montreal, P. Q., every alternate Thursday, at 8 p. m.

The Civil Engineers' Club of Cleveland meets in the Case Library Building, Cleveland, O., on the second Tuesday in each month, at 8 p. m. Semi-monthly meetings are held on the fourth Tuesday of each month.

The Engineers' Club of Cincinnati meets at the rooms of the Literary Club, No. 24 West Fourth street, Cincinnati, O., on the third Thursday in each month, at 7.30 p. m. Address P. O. Box 333.

The Engineers and Architects' Club of Louisville meets in the Norton Building, Fourth avenue and Jefferson street, on the second Thursday each month at 8 p. m.

The Western Foundrymen's Association meets in the Great Northern Hotel, Chicago, on the third Wednesday of each month. B. W. Gardner, Monadnock Block, Chicago, is secretary of the association.

The Association of Civil Engineers of Cornell University meets on Friday of each week at 2.30 p. m., from October to May, inclusive, at its association rooms in Lincoln Hall, Ithaca, N. Y.

#### The Traveling Engineers' Association.

The next annual meeting of the Traveling Engineers' Association will be held at Pittsburgh, Pa., commencing Tuesday, Sept. 10th, at 9 a. m. The headquarters and convention hall will be at the Seventh Avenue Hotel. There will be opportunities to visit the Galena Oil Works, the Westinghouse Air-Brake Works, the Pittsburgh Locomotive Works, H. K. Porter Locomotive Works and Carnegie, Phipps & Co. Addresses are expected from Mr. J. T. Brooks, Second Vice-President Pennsylvania Company, and Mr. Joseph Wood, General Manager Pennsylvania Company, and Mr. J. N. Barr, Superintendent Motive Power Chicago, Milwaukee & St. Paul.

#### PERSONAL.

—Maj. E. W. S. Moore, Secretary and Treasurer of the West Virginia Central & Pittsburgh, died at Cumberland, Md., Aug. 9.

—Mrs. Orland Smith, wife of General Orland Smith, first Vice-President of the Baltimore & Ohio Railroad, died at Baltimore, Aug. 12.

—Mr. W. B. Page has been appointed Assistant Engineer of Motive Power of the Philadelphia & Erie and the Northern Central lines of the Pennsylvania Railroad.

—Mr. E. E. Olcott has been appointed General Manager and Treasurer of the Hudson River Line, operating the New York & Albany day boats, taking effect Aug. 20, in place of Mr. Charles Townsend Van Santvoord, deceased.

—Mr. John R. Irwin, who was for years Trainmaster of the Western Division of the Baltimore & Ohio, but more recently General Manager of the Pittsburgh, Fairport & Northwestern Dock Company, died at Painesville, O., Wednesday, Aug. 14. He was Mayor of Painesville at the time of his death.

—Mr. F. T. Steel, Division Freight Agent of the Queen & Crescent, whose headquarters have been at Birmingham, Ala., has recently resigned that position, which he has held for about five years. He has accepted the office



of Commissioner of the organization recently formed by the individual coal operators in Walker County, Ala.

—Mr. John F. Lane, Local Freight Agent of the Lake Shore & Michigan Southern at Buffalo, N. Y., has been promoted to be General Agent, a new office. Mr. Lane began service with the Lake Shore company more than 25 years ago, and all that time has been connected in various positions with its ticket offices in Buffalo, N. Y.

—Mr. F. W. Huntington, District Passenger Agent of the Great Northern in New York City, has been transferred to Philadelphia. Mr. E. D. Spencer, now of the Philadelphia office, will go to New York as Passenger Agent. No change will be made in the responsibilities of Mr. L. W. Lake, General Agent at New York, by these changes.

—President Skelton Williams has appointed Cecil Gabbett Vice-President and General Manager of the Georgia & Alabama road, which is the reorganized Savannah, Americus & Montgomery road. Cecil Wilcox Brown, of Baltimore, is Treasurer; W. W. Mackall, of Savannah, Secretary; and A. Pope, Americus, General Freight and Passenger Agent, who served in similar positions with the old company.

—Mr. George W. Saul, President of the Ohio Southern Railroad, who was appointed Receiver of that property in the proceedings brought some months ago, has resigned that office and Messrs. McGrew, of Hamilton, O., and W. E. Matthews, of Ottawa, O., have been appointed Receivers of the road. Mr. McGrew is connected with the new Lima Northern Railroad and Mr. Matthews is cashier of the bank of A. V. Rice & Co., at Ottawa.

—Sir. Charles Rivers Wilson, the new President of the Grand Trunk Railroad, arrived in New York City from England last week and attended the meeting of the Presidents which was held on Thursday of last week, when he made a short speech. He is now in Montreal, where he expects to remain for several weeks, familiarizing himself with the administration and accounts of the Grand Trunk. In September he will make an examination of all the lines operated by that company.

—Mr. James L. Taylor, European Agent of the Pennsylvania Railroad, and who was one of the delegates from that company to the International Railroad Congress, was the recipient, after the close of the Congress, of a handsome testimonial from the American delegates in the shape of a dinner at the Café Royal, London. All of the American delegates were present, as well as many other members of the Congress and English railroad men, and the principal speeches dealt chiefly with the highly appreciated attentions which had been shown the Americans by Mr. Taylor, his efforts in this respect having been the occasion of the testimonial. Afterward the American delegates presented to Mr. Taylor a handsome silver loving cup designed by Elkington & Co.

—Mr. A. J. Hitt has been appointed General Superintendent of the Chicago, Rock Island & Pacific, to succeed the late Charles Dunlap. Mr. Hitt has been Assistant General Superintendent of the company at Topeka since January, 1893, and previous to that was Division Superintendent. Mr. W. H. Stillwell has been promoted to be Assistant General Superintendent. Mr. Stillwell is now located at Des Moines as Superintendent of the Iowa division and was formerly Trainmaster at Goodland, Kansas, when the Rock Island first built into the western part of Kansas. From there he went to Horton as Division Superintendent, succeeding the late Mr. Dunlap. Mr. Harry Fox, who succeeds Mr. Stillwell as Superintendent of the Iowa division at Des Moines, was formerly Assistant Superintendent of that division, but was promoted about five months ago to be Division Superintendent of the Southwestern Division and removed to Herington, Kansas. Mr. C. W. Jones becomes the new Superintendent of the Southwestern Division at Herington. Mr. Jones was formerly on the Iowa Division, having succeeded Mr. Fox as Assistant Superintendent when the latter went to Herington. He now again receives the position vacated by Mr. Fox's promotion. A. W. Kelso, who has been appointed Assistant Superintendent of the Iowa Division, has been Chief Clerk of the general office at Chicago for a number of years and was formerly Chief Clerk at Topeka when Mr. W. I. Allen was General Superintendent.

#### ELECTIONS AND APPOINTMENTS.

**Chicago, Iowa & Dakota.**—H. C. Stewart has been appointed Auditor, General Freight and Passenger Agent of the road, with headquarters at Eldora, Ia.

**Rochester Southern.**—The officers of this consolidated company, a branch of the Lehigh Valley, formed last week, are as follows: President, Elisha P. Wilbur, South Bethlehem, Penn.; Vice-Presidents, Charles Hartshorn, Robert H. Sayre and John B. Garrett; Secretary, John R. Fanshaw; Treasurer, William Caldwell; Engineer, Charles E. Webster, South Bethlehem, Penn. The Directors are Wilson S. Bissell, George Sicard, Joseph H. Horton and Peter C. Doyle, of Buffalo; Eugene H. Satterlee and Joseph W. Taylor, of Rochester; Henry S. Drinker, James F. Schrapferkotter, of Philadelphia; Alexander M. Holden, of Honeoye Falls, and the President and Vice-Presidents.

#### RAILROAD CONSTRUCTION, Incorporations, Surveys, Etc.

**Allegheny & Chartiers.**—This company filed a charter at Harrisburg on Aug. 15. The road is to extend from Esphen Borough in Allegheny County, to the City of Allegheny, about 1½ miles. George H. Brown, of Pittsburgh, is President, and W. D. Uptegroff and T. W. Sieman, also of Pittsburgh, are the additional directors.

**Central of New Jersey.**—Dick & Company, of Hazleton, Pa., with a force of 70 men, have commenced work on a new branch of this road. The spur will extend from Audenried to Pleasant Hill, Pa., and will require four weeks to complete it. It gives the company additional advantage in competing with the Lehigh Valley for freight from that point.

**Chicago & Southeastern.**—The officers announce that the extension from Waveland Junction to Brazil, Ind., 31 miles, will be opened for traffic this week.

**Cincinnati & Jackson.**—A company of this name, with a capital stock of \$160,000, filed articles of incorporation with the Secretary of State at Lansing, Mich., on Aug. 12. The new company proposes to construct a new line of road from Jackson to Addison, a distance of 20 miles. The new road will complete a direct line of road from Jackson to Cincinnati. William D. Sterns, of Toledo, is the principal stockholder.

**Eastern of Minnesota.**—This road is to be connected with Mille Laacs Lake, on which are many millions of feet of standing pine timber, by a standard gage road 20 miles long, from the south end of the lake to Mora. Grading has begun this week, with a force that will soon consist of 500 men and 70 teams. The branch is to be ready for business by January next. The Eastern road is cutting down its grades and improving its roadbed with a view to more effectively handling the heavy grain traffic. It is putting in a 40-stall round house at Sandstone, half way between Minneapolis and Duluth, and is building many new side tracks. Flour and grain trains will be made up at Sandstone, and run from there direct to the elevators, mills or yards at the head of the lakes to which they are consigned. It is expected to have the bulk of each day's grain ready for the Duluth inspectors at about 9 a. m.

**La Follette.**—A charter has been recently granted in Tennessee to this company to build through Campbell County. The company is to build a road from La Follette to Jellico, in Campbell County, and connect with the Knoxville & Ohio line to Coal Creek, in Anderson County. The incorporators are Harvey M. La Follette, Evan T. Warner, S. C. Baird, J. Henderson Reid, and E. H. Powers.

**New Roads.**—There is a movement to build a line about two miles long from the Boston & Albany at Chester, Mass., to the granite quarries of the Hudson & Chester Co. in the town of Becket. The prime mover is Henry S. Hopkins, of St. Louis, one of the contractors who is to furnish granite for the 1,000-ft. dam across the Connecticut River at Holyoke, Mass. It is said that surveys have already been made by Boston & Albany engineers, and that that road is willing to contribute \$25,000 toward the construction of the branch. The engineers estimate that the total cost would be \$90,000. The route is very hilly. The stone from those parts of the quarry now in operation is hauled to the railroad at an expense of 80 cents to \$1 a ton.

**Northern Ohio.**—All the legal formalities necessary for the transfer of the Pittsburgh, Akron & Western to this company, which was organized to operate the property, have now been completed. The organization of this latter company was completed at Lima, O., on Aug. 14. The officers elected are H. L. Brice, brother of Senator Brice, who purchased the property, being elected President, A. L. Conger, of Akron; Vice-President, and W. E. Hackedorf, Secretary. The new officers state that very important improvements will be made to the roadbed. Already all the track forces have been largely increased, and the improvements already made are noticeable. One of the officers states that at least \$1,000,000 will be spent upon the improvements contemplated. The Directors of the Lake Erie & Western will operate the property under a lease decided upon last week, as a division of that road.

**Ottawa, Arnprior & Parry Sound.**—Chief Engineer Mountain has returned from an inspection over the gap of 50 miles which is to unite the eastern and western sections of this railroad in Ontario. Regarding the western section he states that it is nearly completed. The track is now being laid on the last seven miles, connecting with the division in operation to Parry Sound.

**Philadelphia, Wilmington & Baltimore.**—That portion of the Claymont Branch of the Philadelphia, Wilmington & Baltimore extending from the end of the South Chester road at the Delaware State line to Naaman's Creek is now completed, and the operating department has taken charge of it and put it into operation. The branch is about 18 miles long.

**Queen Anne.**—The contract for building the first section of the road was last week awarded by the Peninsula Construction Co., to William C. Merritt, of Easton, Pa. This portion of the line extends from Queenstown to Denton, about 20 miles. The contract includes the entire work necessary to prepare the road for rolling stock, and also embraces the building of a pier at Queenstown at which the steamboats giving connection with Baltimore will land. Work is to begin at once, and it is expected to have the section finished within six months. The grades along the route are light and the alignment is good, there being but few curves. J. W. Troxell, of Baltimore, is Chief Engineer of the road.

**San Jacinto & North Texas.**—This company was incorporated in Texas last week, to build a road from a point on the Houston, East & West Texas in Liberty county, 44 miles north of Houston, northwesterly about forty miles to a junction with the International & Great Northern in Walker County. The office is to be at San Jacinto. The incorporators are William E. Davis, of Boston, Mass.; E. J. Minnock, Hayes Lougee, M. S. Cooper, W. P. McComb, of Montgomery County, Texas; A. G. Hall, of Houston; L. W. Levy, of Galveston; E. L. Smith, G. I. Turnley and B. F. Ellis, of San Jacinto County, Texas.

**Tilsonburgh, Lake Erie & Pacific.**—Tenders are again asked for clearing, grading, bridging, piling, culverts and tracklaying on this company's line between the Grand Trunk station at Tilsonburgh and Port Burwell, Ont. W. T. Jennings, Board of Trade building, Toronto, is Consulting Engineer, where plans may be seen.

#### GENERAL RAILROAD NEWS.

**Atchison, Topeka & Santa Fe.**—The Chicago Elevated Terminal Company has filed an intervening petition in the Atchison suits, setting up its contract of 1893 with the Atchison, Topeka & Santa Fe Railroad Company in Chicago, and the Chicago, Santa Fe & California Railway Company for the purchase of the terminal property of these two companies in Chicago, and claiming that its property thus acquired is still in the hands of the Atchison Receivers; that the net earnings of the property are sufficient to pay its rental, but that the Receivers refuse to pay it. It is further claimed that the common stock of the two companies making the deed of this property was illegally issued to the Atchison under the general mortgage, and an injunction is prayed for restraining the Atchison reorganization committee from foreclosing and carrying into effect the provisions of the reorganization plan until the claims of the Terminal Company, which claims to be a general creditor, are satisfied.

The bill is brought in each of the various jurisdictions in which the Atchison foreclosure suit is pending.

**Atlantic & Pacific.**—Judge N. C. Collier of the United States Circuit Court, sitting in chambers at Albuquerque, N. M., on Aug. 15, refused to grant the application of the first mortgage bondholders of the Atlantic & Pacific for a separate Receiver for that property. The case was ably presented on both sides. The Atlantic & Pacific bondholders' committee brought a bill for foreclosure of the first mortgage, alleging a de-

fault of interest and that the security represented by the present value of these bonds is entirely inadequate. They also set up that the Receivers appointed for the Atchison, Topeka & Santa Fe and St. Louis & San Francisco, being also Receivers of the Atlantic & Pacific, could not adequately protect the interest of the latter company, and therefore they should be removed and an independent Receiver for the Atlantic & Pacific appointed. Especial complaint was made concerning the division of earnings and expenses on through traffic, as between the Atlantic & Pacific and the other parts of the Atchison system and that a certain equipment contract is burdensome to the Atlantic & Pacific.

Judge Collier, in his opinion, said that he would not hesitate to appoint an independent Receiver, if he were persuaded that the present Receivers refused to correct any injustice suffered by the bondholders of the Atlantic & Pacific, or if the Receivers were swayed in their decisions by conflicting interests of the property; in their charge. The Court considered that the advantage secured by the Atlantic & Pacific by its operation as part of one transcontinental route was too great to be abandoned unless the alleged injustices recited by the complainants, if substantial, could not be remedied without separation. He, therefore, denied the motion, giving the plaintiffs the right to renew their application for an independent Receiver on Nov. 1, if, in the meantime, a satisfactory modification of the traffic agreement with the Atchison could not be made.

**Chicago, Peoria & St. Louis.**—In the United States Circuit Court at Springfield, Ill., an order was made last week for the sale of this road on Sept. 14. The road will be sold in three divisions, the first including the line from Pekin to Havana and Jacksonville, the second, the line from Havana to Springfield; \$250,000 of stock in the Peoria & Pekin Union Railway, and the line from Springfield to East St. Louis, and the third is the line proposed to be built from Havana to Rock Island. No bid of less than \$250,000 for the first parcel, \$300,000 for the second and \$50,000 for the third will be accepted. It is likely that the property will be purchased by the St. Louis, Alton & Terre Haute road.

**Cleveland, Cincinnati, Chicago & St. Louis.**—The earnings of the company for June, and the year to June 30, are given in the following statement:

	1895	1894	Inc. or Dec.
June:			
Gross earn.....	\$1,181,743	\$1,021,065	I. \$160,678
Oper. exp.....	921,347	757,690	I. 163,657
Net earn.....	\$260,395	\$263,375	D. \$2,980
Fixed charges.....	242,021	242,985	D. 964
Surplus.....	\$18,374	\$20,390	D. \$2,016
Year ending June 30:			
Gross earn.....	\$13,625,027	\$13,031,049	I. \$593,978
Oper. exp.....	10,254,068	9,750,503	I. 503,565
Net earn.....	\$3,370,959	\$3,280,545	I. \$90,414
Fixed charges.....	2,844,705	2,759,171	I. 85,534
Surplus.....	\$526,253	\$521,373	I. \$4,880

**Duluth, Mississippi River & Northern.**—This road has filed in St. Louis County, Minn., a trust deed for \$2,400,000 in favor of the Central Trust Company of New York to cover the funds for the construction of 80 miles of road in Northern Minnesota. It is stated by the company that the funds are in part for an extension of the line northwesterly into new pine and mineral lands. It is believed in some quarters that the major portion of the funds will be used for other purposes, and that before long there will be a third direct road from the Western Mesaba range to Lake Superior, connecting, perhaps, with the St. Paul & Duluth a short distance above Duluth, with ore docks at the latter city. To do this about 60 miles of line will have to be constructed and the haul of the road from the Western Mesaba will be shortened not far from 40 miles; the present line of the Duluth & Winnipeg, which is used for most of the distance, being very roundabout.

**Lake Erie & Western.**—The acquisition by this company of the recently-organized Northern Ohio road has developed more interest than is usually manifested by a change in the control of a line of such comparatively small importance. This is because the transaction seems to indicate a possible change in policy by the directors of the Lake Erie & Western, and there is natural curiosity to study the geographical relations of the new road to the existing Lake Erie & Western lines, and to inquire what changes are likely to be brought about in the traffic movements of the Lake Erie & Western, and what particular advantages will be secured to the company by the new line. The Lake Erie & Western has been rather peculiarly situated, with a large traffic originating on its road, but receiving practically no traffic from any of its connections. It has been a profitable road with good credit, and has for some years past paid five per cent. dividends on its preferred stock. The directors have heretofore declined in several instances to take over properties that the company was in a position to secure if its directors favored a policy of extension. Therefore the acquisition of a line which heretofore has been little heard of, with the track in poor condition and with very light traffic, comes as a surprise, and it seems worth while to enquire what advantages the directors expect to secure for the Lake Erie & Western by leasing the Northern Ohio.

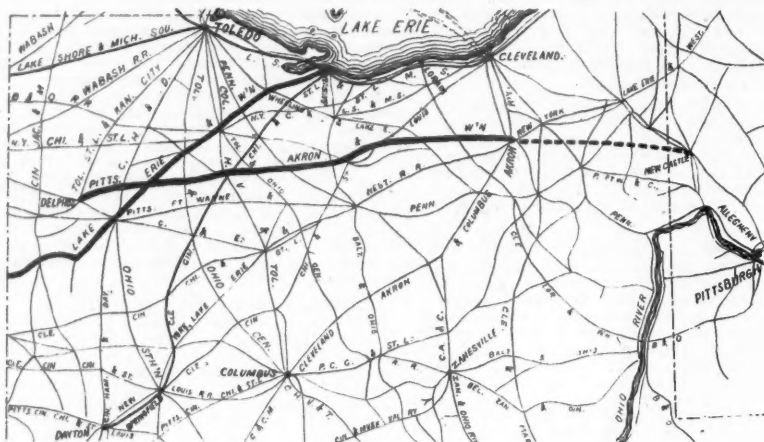
The history of the Northern Ohio may be briefly told. It is the successor of the Pittsburgh, Akron & Western, which was a consolidation, in 1890, of the old P. A. & W. and the Cleveland & Western. The latter road was a narrow gage line, 56 miles long, from Delphos in Western Ohio eastward to Carey. The new company rebuilt the line, changed it to standard gage and then built an extension of about 95 miles to Akron, which is an important freight center. The present line is 165 miles long across the State of Ohio. As will be seen by the map, it is practically parallel to the Pittsburgh, Fort Wayne & Chicago. It has not been in a position to secure any important traffic from connecting lines, and it has not developed any local business of consequence. In 1893 Receivers were appointed, and for some time past the road has not been operated. It was sold at foreclosure early this year and a few weeks ago it was purchased by Mr. Calvin S. Brice, President of the Lake Erie & Western, from the parties who bought it at foreclosure sale. The property has since been leased by the Lake Erie & Western as stated above, that company guaranteeing the bonds of the Northern Ohio, the name of the new company organized by Senator Brice. The new company is authorized to issue bonds amounting to \$4,000,000 (about \$15,000 a mile), but only \$2,500,000 of these bonds will be issued at present. It was provided that \$1,000,000 of these new bonds (or at the rate of \$6,000 a mile) will be used to improve the roadbed and provide additional equipment, and these improvements have already been started.

As previously stated, the Lake Erie & Western has received little traffic from connecting roads. It has a line



to Sandusky, or Lake Erie, but receives no important freight from that town, the ore which reaches that town, and the most important freight procurable there, being destined for the East. It connects with the Lake Shore & Michigan Southern at Sandusky, but receives little freight from that line, the Big Four being the favored road. The Lake Erie & Western directors believe that the development of local traffic has reached its highest point. With the exhaustion of the Indiana gas-field there would be a loss of local traffic. The opportunity to purchase the Pittsburgh, Akron &

directors which will be upheld by the present Supreme Court of the state. In the meantime the Southern will set about improving the property. Among the improvements, besides putting down of 85 miles of heavy rails between Selma and Greensboro, will be the building of heavier and stronger bridges between those points, and the erection of larger and better freight and passenger stations at Greensboro, Durham and Selma. The line between Selma and Greensboro will be part of the main line to and from Norfolk, Va., the new deep-water terminus.



The Northern Ohio Railroad (Pittsburgh, Akron & Western).

Western seemed favorable, giving the company an eastern extension of 130 miles on favorable financial conditions. The company secures a terminus in an important freight-producing district, with improved connections to Pittsburgh and the Mahoning and Conneville regions. It also secures a line within a short distance of Cleveland, and it is hoped to make some arrangement for an entrance to that city.

Before the Pittsburgh, Akron & Western was forced into a receivership in 1893, considerable money had been expended on a proposed extension east of Akron, and the first 20 miles beyond that town was graded. Since then, of course, nothing has been done, but the company owns almost all the right of way for this line to Newcastle, about 60 miles, and there seems to be a good prospect of its construction by the present owners. The extension to Newcastle would give the company a number of additional important connections, including the Western New York & Pennsylvania, which has a line into Buffalo.

**Louisville & Nashville.**—The earnings of the company for the year are published in advance of the annual report, and are shown in the following statement:

	1895.	1894.	Inc. or Dec.
Gross earn.	\$19,275,994	\$18,744,537	I. \$531,457
Oper. exp.	12,277,773	11,863,783	I. 413,990
Net earn.	\$6,998,221	\$7,119,552	D. \$121,331
Fixed charges.	5,81,064	5,665,636	D. 155,428
Surplus.	\$1,415,157	\$1,444,216	D. \$28,759
Other income.	363,273	272,288	I. 90,985
Total.	\$1,778,430	\$1,717,204	I. \$61,226
Sinking fund, etc.	1,077,845	164,713	I. 913,132
Surplus.	\$700,585	\$1,552,491	D. \$851,906

In pursuance of the new policy adopted last year, the company deducts from its income account, net sinking fund payments of \$175,000; losses on operated roads, \$198,280; discount, \$6,887, and the balance of advances to South & North Alabama, \$397,609. These are the payments for the year after charges. The actual surplus for the year is \$32,909 less than the estimate made in July.

**Manhattan.**—The earnings for the fiscal year to June 30, as reported to the New York Railroad Commissioners, are given in the following statement:

	1895.	1894.	Inc. or Dec.
Gross earn.	\$9,397,571	\$10,153,575	D. \$756,004
Oper. exp.	5,113,965	5,532,039	D. 418,074
Net earn.	\$4,283,606	\$4,621,536	D. \$337,930
Other income.	257,135	311,677	D. 54,542
Total.	\$4,540,741	\$4,933,213	D. \$392,472
Fixed charges.	2,748,693	2,600,565	I. 148,128
Surplus.	\$1,792,048	\$2,332,648	D. \$540,600
Dividends.	1,800,000	1,800,000	I. 0
Deficit.	\$277,957	\$32,648	I. \$245,309

**North Carolina.**—This road was again leased to the Southern Railway Company, last Friday, for a period of 99 years, under the following terms: For the next six years, beginning Jan. 1, 1896, at 6 1/2 per cent. a year on the \$4,000,000 stock of the road; for the next succeeding 93 years—or until Jan. 1, 1995—at seven per cent. As the road will hereafter declare dividends in excess of six per cent., the property of the road will become taxable. Up to this time the road has paid no state or county taxes, on account of exemptions contained in its charter. These taxes the Southern will also pay. The lessee company also relinquishes all rights to remove betterments at the end of its lease, or if the lease should at any time be surrendered. These terms are regarded as favorable to the Southern Railway, which already has a lease which would not have expired until September, 1901, it having been leased to the old Richmond & Danville in 1871, at an annual rental of \$273,000, which was assumed by the Southern Railway as the successor of the Richmond & Danville. The North Carolina road was built by the state of North Carolina, which still owns \$3,000,000 of its \$4,000,000 of stock, and extends from Goldsboro, via Raleigh and Greensboro, to Charlotte, N. C., 223 miles, and is regarded as the best paying railroad in the state. While it was known that the governor of North Carolina, and a majority of the Board of Directors appointed by him, favored a renewal of the lease, the opposition of the newspapers and the people of the state generally to a renewal before the expiration of the present lease was so pronounced that it was thought the directors would decline to renew the lease now on that account. Leasing the road for a longer term than another term of 30 years was an additional surprise. It is reported in North Carolina this week that steps will be taken to have the lease declared void on account of insufficient consideration, etc., and the claim is made that a case can be made against the action of the

**Portland & Rumford Falls.**—The following statement of the earnings of the year to June 30 are for a company operating 57 miles of road in Eastern Maine:

	1895.	1894.	Inc.
Gross earn.	\$173,349	\$111,431	\$61,918
Oper. exp.	100,891	67,456	33,435
Net earn.	\$72,458	\$43,974	\$28,483
Fixed charges.	41,886	29,870	12,016
Balance.	\$30,571	\$14,103	\$16,468
Dividends.	13,800	12,787	1,012
Surplus.	\$16,771	\$1,316	\$15,455

The earnings applicable to dividend exceed 10 per cent. on the outstanding capital stock. The statement may include earnings on construction freight. The extension to Rumford Falls was built in 1894. The earnings from freight were \$104,946 in 1895 and \$60,183 in 1894, an increase of \$44,763. The passenger earnings increased \$18,929 to \$59,429. The directors say: "The property has been materially improved during the year; new rolling stock has been added, and at the present time new iron bridges are being put in on substantial masonry in place of the old wooden ones. With the completion of the new lumber mills, which will be in operation next month, and with the opening of the new railroad to the Rangeley lakes, a portion of which will be ready for traffic during the present month, the company looks for a wholesome increase in its business during the next year."

**Rochester Southern.**—This company was organized last week to operate two branches of the Lehigh Valley crossing its Buffalo extension. These are the Rochester & Honeye Falls road, extending south from a point near Rochester and the Rochester & Southern which was built this summer from the terminus of the Honeye Falls road south to Hemlock Lake. This last branch is 15 miles long and was only opened for traffic a week or so ago. The consolidated company will operate 25 miles of road from Rochester south, crossing the Buffalo extension of the Lehigh Valley at Rochester Junction, and thence extending to the north end of Hemlock Lake, which is a popular summer resort for the district around Rochester. The capital of this new company is \$800,000 and the officers are all identified with the Lehigh Valley.

**Southern Pacific.**—The earnings of the proprietary, leased and affiliated lines for June and the six months are given below:

	1895.	1894.	Changes.
Gross earnings.	\$3,912,345	\$3,912,345	I. \$184,236
Oper. exp.	2,829,727	2,829,727	I. 189,951
Net earnings.	\$1,082,618	\$1,082,618	D. \$5,715
Six months ending June 30:			
Gross earnings.	\$23,968,982	\$23,968,982	I. \$1,041,376
Oper. exp.	17,333,387	17,333,387	I. 1,019,530
Net earnings.	\$6,635,595	\$6,635,595	I. \$21,846

**Union Pacific.**—The earnings for June and the six months of several divisions of the company, the total for the operated lines are shown in the following statement:

	1895.	1894.	Inc. or Dec.
Month of June:			
Gross earn.	\$1,836,540	\$1,821,693	I. \$14,847
Oper. exp. excl. taxes.	1,173,443	1,491,625	D. 318,182
Net earn.	\$663,096	\$330,068	I. \$333,028
Six months to June 30:			
Gross earn.	\$9,561,582	\$10,763,743	D. \$1,202,161
Oper. exp. excl. taxes.	6,663,320	8,222,678	D. 1,559,357
Net earn.	\$2,898,262	\$2,541,065	I. \$357,197
OR, SHORT LINE & UTAH NOR.			
Month of June:			
Gross earn.	\$502,832	\$377,868	I. \$124,964
Oper. exp. excl. taxes.	247,687	321,618	D. 73,931
Net earn.	\$255,145	\$56,250	I. \$198,895
Six months to June 30:			
Gross earn.	\$2,320,103	\$2,330,412	D. \$10,309
Oper. exp. excl. taxes.	1,437,876	1,711,233	D. 273,357
Net earn.	\$882,227	\$619,179	I. \$263,048

ST. JOSEPH & GRAND ISLAND.

	1895.	1894.	Inc. or Dec.
Month of June:			
Gross earn.	\$39,905	\$53,810	D. \$13,905
Exp. excl. taxes.	41,736	56,741	D. 15,005
Net deficit.	\$1,831	\$2,931	D. \$1,100
Six months to June 30:			
Gross earn.	\$272,055	\$408,493	D. \$136,437
Exp. excl. taxes.	234,086	315,087	D. 81,001
Net earn.	\$37,969	\$93,405	I. \$55,436

**Western North Carolina.**—This road, which is a branch of the Southern Railway and extends from Salisbury, N. C., to Asheville, N. C., with an extension to Point

Rock and other remote mountain points in the extreme western part of the North Carolina Blue Ridge mountains, was advertised to be sold last Friday, by the administrator of William Greenlee, who had obtained a judgment for damages in the sum of \$500 in the state courts. Judge Simonton, of the United States Circuit Court, however, granted a restraining order, and set the case for further hearing before him at Flat Rock, N. C., on Sept. 24.

## TRAFFIC.

### Traffic Notes.

In the Connellsville (Pa.) coke region about 15,000 ovens are now in operation, probably the largest number ever in operation at one time.

The Southern Pacific announces a through sleeping-car line from New Orleans to Monterey, Mex., over the Mexican International and the Monterey & Mexican Gulf. The time is about 48 hours.

In the State Court at Lebanon, Ky., Aug. 15, the Louisville & Nashville was found guilty of extortion in the rates on coal from mines on the Knoxville Branch to Louisville and other points and a fine of \$100 was imposed. There were 43 other indictments, but it is probable that an appeal will be made on the first decision.

The Trunk Line and Central Traffic Association Presidents met on Aug. 15, and further considered the proposed agreement to establish a Governing Board with authority, for a term of years, to make all competitive rates. No definite action was taken, and nothing of importance will be done until about the middle of September. It is said that the prevailing sentiment now is in favor of a Governing Board of nine men.

Hon. William E. Chandler, of New Hampshire, has written a letter to the Interstate Commerce Commission, and published it in the newspapers, demanding that the Commissioners be on their guard to prevent the consummation of the proposed new Trunk Line agreement. Mr. Chandler notes the clause in the proposed agreement providing that it shall conform to all federal and state laws, but he seems to think that there is a cat in the meal somewhere, and that this statement had better be taken with a few grains of salt.

The Supreme Court of Georgia has decided in favor of the Seaboard Air Line the boycott case which was begun last spring. This line, when ostracized by the Southern Railway & Steamship Association, entered suit against the Western & Atlantic, a member of that Association, asking that the latter be forbidden to discriminate against the plaintiff. An agreement was reached some months ago between the roads, so that the decision will have no effect on actual business, but it is said that the court declares all traffic boycotts illegal.

### Southern States Freight Association.

Representatives of the roads in the Southern Railway & Steamship Association, who have held numerous meetings in New York City lately, have practically completed the reorganization of the freight department, which now goes under the above name. The association is now made permanent, with a clause permitting members to withdraw on 60 days' notice. This clause, similar to that in force in many agreements in Western territory, was included on the demand of Vice-President St. John, of the Seaboard Air Line. The organization of a committee to supervise rates and order differentials, when necessary, is yet to be perfected, and the officers will not be elected before next week. On the committee to nominate officers are Messrs. H. Walters, Henry Fink, E. St. John and others.

### Excursions to Toledo.

One of the most important elements of Toledo's prosperity is the aggressiveness of its railroads in the excursion business. Every year excursion rates are extended to new points, until now Michigan and Ohio are covered and some of the roads have reached out into Illinois, West Virginia and Indiana. The latest convert is the Wabash. A few weeks ago it ran an excursion from Logansport, Ind., which proved such a successful venture that the Wabash is planning an extensive series from points along its lines. The Lake Shore has refused to run any Sunday excursions until this season. It brought in a large excursion yesterday [Aug. 11], and several more Sunday excursions are scheduled for the season.

The Hocking Valley Columbus Sunday excursions have become an established institution, and never received such liberal patronage as they have this year. The road will bring some large excursions from the Ohio River a little later in the season. The Ohio Central has become a popular excursion route from Columbus and intermediate points, carrying thousands of people to Toledo this season. On its other line the Ohio Central has been reaching way down into West Virginia to Charlestown and Gauley, 328 miles away. The Clover Leaf has not been slow, but has been making excursion rates along its line away down into Indiana, at first with unsatisfactory results, but it has kept at it and now brings great train loads from as far as Marion, Ind. These people formerly spent their summer's outing in Chicago and Northern Indiana summer resorts until the Clover Leaf turned the tide toward Toledo.

The Cincinnati, Hamilton & Dayton never did such an excursion business to Toledo as it is doing this season. It has regular Sunday excursions from Lima and North Baltimore. People can come up from these stations and enjoy a ride on any of the lake steamers, returning at 9:30 in the evening. The C. & M. has been doing a heavy business from Battle Creek and intermediate points, and has extended rates to Allegan. In addition to this it runs excursions from the Ohio divisions as far as Van Wert. The Toledo, Ann Arbor & North Michigan is eating into Detroit's territory at a rapid rate. People who never thought of going to any other place than the City of the Straits now come to Toledo.

Of course there is something in it for the railroads, but it is by far of greater benefit to Toledo.—*Toledo Blade.*

### Chicago Traffic Matters.

CHICAGO, Aug. 21, 1895.

The Western Passenger Agents have finally come to a conclusion that they may as well give up trying to form a new association, and have again referred the whole question back to the executive officers.

An attempt was made last week to agree upon restrictions to govern the running of harvest excursions this fall, but owing to the objections of the Illinois Central nothing was accomplished, and the matter was left for each road to act on 10 days' notice to the Chairman.

There is some talk of attempting to revive the Western Trunk Lines Committee in the near future.

The Wisconsin lines are indulging in a coal rate war, having cut the rate from Milwaukee to Fox River points from \$1 to 65c. a ton.